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CONTENTS AND SUBJECT INDEX

Child Health in National Defense. Edward Clay Mitchell, M.D., Memphis, Tenn. 1

Marihuana. Walter Bromberg, M.D., New York 4

Quinine and Dystonia Musculorum Deformans. George B. Hassin, M.D., Chicago 12

Sulfanilamide for Puerperal Infections Due to Clostridium Welchii. Joseph F. Sadusk Jr., M.D., and Constantino P. Manahan, M.D., Baltimore 14

The Prolonged Use of Protamine Zinc Insulin. Herman O. Mosenthal, M.D., and Morton F. Mark, M.D., New York 17

The Use of Heparin in Blood Transfusions. S. W. Sappington, M.D., Philadelphia 22

Cryptorchidism. William W. Johnson, M.D., New York 25

Coronary Atherosclerosis in Diabetes Mellitus. Howard F. Root, M.D.; Edward F. Bland, M.D.; William H. Gordon, M.D., and Paul D. White, M.D., Boston ... 27

Vulvovaginitis in Pregnancy. E. G. Waters, M.D., Jersey City, N. J., and Eakle W. Cartwright, M.D., San Diego, Calif. 30

After-Treatment of Poliomyelitis. K. G. Hansson, M.D., New York . 32

CLINICAL NOTES, SUGGESTIONS AND NEW INSTRUMENTS

The Removal of Foreign Bodies: A Modified Incision. Clarence E. Rees, M.D., San Diego, Calif. ... 35

Retroperitoneal Rupture of a Duodenal Ulcer. S. F. LeBauer, M.D., and W. L. Patman, M.D., Greensboro, N. C. 36

Androgens and the "Coloring" of Women. E. C. Hamblen, M.D., and W. Kenneth Cuyler, M.S., Durham, N. C. 38

Dilation of the Pupil for Ophthalmoscopic Examination. Leo L. Mayer, M.D., Chicago 38

COUNCIL ON PHYSICAL THERAPY 39

COUNCIL ON PHARMACY AND CHEMISTRY 41

SPECIAL ARTICLE

The Case of Asa Brunson versus Morris Fishbein 42

EDITORIALS

Archives of Surgery: New Editorial Developments 60

Pathology of Obstetric Shock 60

Function of State in Medicine 61

Influence of Thyroid Therapy on Mental Growth of Cretins 62

CURRENT COMMENT

Fourth of July Injuries 62

Infectious Mononucleosis 62

BUREAU OF LEGAL MEDICINE AND LEGISLATION 87

(Subject Index on next page)

ORGANIZATION SECTION

Health Problems in Education 63

Official Notes 66

Medical Legislation 66

Woman's Auxiliary 67

A.M.A. Session . NEW YORK . June 10-14, 1940

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SUBJECT INDEX TO THIS ISSUE

The letters used to explain in which department the matter indexed appears are as follows: The Star (*) indicates an Original Article; "ab," abstract; "E," Editorial; "C," Correspondence; "Ml," Medicolegal; "ME," Medical Economics; "OS," Organization Section; "SS," Student Section.

Abell, Irvin, honored....69
Acarophobia, extraordinary....82
Acne necrotica miliaris of scalp....80
vulgaris (familial) or conglobata....ab-95
Addison's Disease, diagnosis....ab-95
Adhesive strips applied then sutured....ab-90
Adrenal deficiency (possible), treatment....81
Alcoholism: chronic; as self inflicted disability....Ml-87
Amenorrhea, treatment, estrogen; gonadotropic substance....ab-91
American Academy of Arts and Sciences....70
Congress of Physical Therapy....71
Legion project in child health....*1
Amphetamine sulfate as mydriatic....*38
Androgens and "coloring" of women....*38
testosterone acetate for psoriasis and eczema....ab-98
testosterone propionate for eunuchoidism.ab-92
testosterone propionate for uterine bleeding....ab-92
Anemia, pernicious, diagnosis; treatment....74
Anesthesia, cyclopropane "sleep" with nupercaine spinal....ab-96
Angina Pectoris from hypothyroidism....ab-96
with diaphragmatic flutter....C-79
Archives of Surgery, editorial changes....E-60
Arsenicals, dermatitis, what treatment after?.83
Arteriosclerosis, coronary, in diabetes....*27
of pancreatic vessels....ab-98
Artichokes, use in mild peptic ulcer....83
Association News....66
Asthma treatment, danger of morphine in.ab-93
Auralgan....81
Bacteria welchii, puerperal infections due to.*14
Bacteriology, Seaman fund for research....69
Blood calcium in newborn....ab-89
Institute on, at Wisconsin....70
pressure, high, with tuberculosis....80
transfusion, Budapest center for donors....75
transfusion, heparin as anticoagulant....*22
Board Examinations....84
Book Notices....85
Books Received....Adv. page 23
Brain tumor, encephalitis....ab-98
Breast cancer, radiation pneumonitis in...ab-90
British Medical Association, meeting....71
Brunson vs. Fishbein....42
Bureau of Investigation....78
Bureau of Legal Medicine and Legislation....87
Cancer, etiology, liquid petrolatum....ab-96
metastasis to lymph node....ab-99
Cannabis Sativa, psychiatric study....*4
Children, health in national defense....*1
Cornea, transplantation....83
Correspondence....79
Council on Pharmacy and Chemistry....41
Council on Physical Therapy....39
Cretins, mentality after thyroid therapy....E-62
Crime and marihuana....*9
Cromer, Stuart P., appointed dean....68
Death, bereavement and mental disease...ab-89
Deaths....76
Dementia Praecox, "lung abscess" in metrazol therapy....ab-94
Dermatitis, allergic, or lymphoblastoma....ab-91
Diabetes Mellitus, coronary atherosclerosis..*27
insulin action and respiratory quotient..ab-92
insulin protamine zinc; prolonged use....*17
Diaphragm flutter in angina pectoris....C-79
Digitalis in syphilitic heart disease....82
Diphtheria and tetanus toxoid immunization..82
Diuresis....73
Dystonia musculorum deformans, quinine in.*12
Eczema, testosterone acetate for....ab-98
Edema, sodium cacodylate to combat extravasation from salyrgan injection....C-79
Embolism, arterial air....ab-97
Encephalitis, epidemic, parkinsonism and Bulgarian belladonna....ab-97
pseudotumoral....ab-98
Eosinophilia....82
Erythema nodosum, nature of....ab-99
Estrogen treatment of amenorrhea....ab-91
Eucatropine as mydriatic....*38
Eunuchoidism, testosterone propionate for.ab-92
Exercise in water vs. out for poliomyelitis..*32
Eye shadows....81
examination, dilating pupil for....*38
transplantation....83
Fishbein, Morris, Brunson's suit against....42
Foot mycosis, copper iontophoresis for....C-79
Foreign Bodies, removal; modified incision..*35
Foreign Letters....72
Fourth of July injuries, warning....E-62
Gastrointestinal thrush....83
Glycerin, type in Auralgan....81
Gonadotropic substance for amenorrhea....ab-91
Hand mycosis, copper iontophoresis for....C-79
Health passbooks, France....73
Problems in Education....OS-63
Heart disease (syphilitic), digitalis in....82
electrocardiogram in hypertension....ab-97
electrocardiogram in hyperthyroidism....74
electrocardiography, course on....68
international session on, at Spa....73
murmur and playing French horn....83
Heparin as anticoagulant in transfusions...*22
Hospital, floating, for wounded Spaniards...73
4-Hydroxy amphetamine as mydriatic....*38
Hyperthyroidism, electrocardiogram in....74
Hypothyroidism, anginal syndrome due to; thyroid extract for....ab-96
Infants, newborn, serum calcium in....ab-89
Insects, extraordinary acarophobia....82
Intestines, acute transient atony....ab-90
Iontophoresis of copper in mycosis....C-79
Iowa Clinical Medical Society....68
Kendall's method of muscle reeducation....*32
Kenny's treatment of poliomyelitis....*32
Knee, injuries....72
Knudsen Award to Dr. Sappington....68
Labbé, Marcel, death....73
Labor, shock in....E-60
Legislation, medical....OS-66
Legrain, Dr., death....73
Leukemia, eosinophilic....82
Lips cancer, lymph node metastasis....ab-99
Longevity of oarsmen....ab-95
Lungs, abscess in metrazol therapy....ab-94
radiation pneumonitis....ab-90
Lymph Node metastases....ab-99
Lymphoblastoma or allergic dermatitis....ab-91
Marihuana....*4
Marriages....75
Medical Center dedicated, Jerusalem....71
Medical Examinations and Licensure....84
Medicine, state, proper sphere....E-61
Medicolegal Abstracts....87
Meetings, Coming Meetings....88
Meningitis, lymphocytic choriomeningitis..ab-94
Meningo-encephalitis after x-ray depilation..75
Menstruation disorders, x-ray treatment..ab-94
disorders, testosterone propionate for....ab-92
Mental Disease and bereavement....ab-89
Microsporum new to India....ab-95
Monilia stellatoidea, n. sp....*30
Moniliasis, vulvovaginitis in pregnancy....*30
gastrointestinal....83
Mononucleosis, infectious, Forssman test...E-62
Morphine, danger in asthma....ab-93
Mouth cancer, lymph node metastases....ab-99
Muscle reeducation in poliomyelitis....*32
Mussel poisoning....ab-91
quarantine, Calif....68
Mycosis, copper iontophoresis for....C-79
National defense, child health in....*1
Board bars extramural students....71
Neck cancer, lymph node metastases....ab-99
Neurology, Burden Research Institute....72
Neurosis, functional....81
New and Nonofficial Remedies....41
News....68
Nicolas, Professor, death....73
Nieman Fellowship to S. M. Spencer....70
Oarsmen, longevity of....ab-95
Obstetrics, graduate course, Illinois....68
Okra, use in mild peptic ulcer....83
Optometry Practice Acts: enforcement; injunctions to restrain violations....Ml-88
Organization Section....63
Otitis Media, use of drops; Auralgan....81
Pacific Science Congress health section....71
Pancreas, arteriosclerosis....ab-98
cancer....ab-89
necrosis, operative indications....ab-99
Paratyphoid, Bact. paratyphosum C cause of enteric fever....ab-96
Pediatrics, graduate course, Illinois....68
Pellagra in uniovular twins....ab-100
Peptic Ulcer rupture of duodenal ulcer draining retroperitoneally....*36
use of okra and artichokes in....83
Personality changes from marihuana....*7
Petechiae of scalp....80
Petrolatum, liquid, carcinogenic action....ab-96
Physicians role in national defense....*1
Congress of Hungarian Sports Physicians.75
Pinard, Marcel, death....73
Plague infection, Washington....70
Pneumonitis, radiation....ab-90
Poliomyelitis, after-treatment....*32
Pregnancy, androgens and "coloring"....*38
vulvovaginitis in....*30
Psoriasis, testosterone acetate for....ab-98
Psychosis, marihuana....*5
Puerperal Infection from Clostridium welchii, sulfanilamide for....*14
Pupils, drugs for dilating....*38
Pyorrhea of gums, vitamin C effect in....83
Queries and Minor Notes....80
Quinine for dystonia musculorum deformans.*12
Radiology, Midsummer Conference....68
Radiomedical calls at sea....75
Revue internationale du trachome....72
Rheumatism, gastric secretion and basal metabolism in....ab-100
visceral, in childhood....ab-98
Roentgen Rays depilation, meningo-encephalitis after....75
effect on normal and tumor cells....74
pneumonitis in breast cancer....ab-90
Royal Society of Medicine symposium on state medicine....E-61
Salyrgan injection, sodium cacodylate to combat extravasation....C-79
Sappington, C. O., Knudsen award to....68
Scalp, acne necrotica miliaris....80
ringworm, meningo-encephalitis from x-rays.75
School health problems....OS-63
tuberculosis problem....OS-65
Scleras, blue....ab-100
Seaman Fund for research....69
Semilunar Cartilages, injuries....72
Skin, action of soap on....ab-91
foreign body removal....*35
pigmentation and androgens....*38
wounds, suture adhesive plaster strips...ab-90
Soap, action on skin....ab-91
Società Medica Coloniale....75
Society Proceedings....88
Sodium cacodylate to combat extravasation from salyrgan injection....C-79
Spaniards, wounded, floating hospital for....73
Spencer, S. M., awarded Nieman Fellowship.70
Spotted Fever, 3 deaths, Philadelphia....70
Sprains, acute, procaine infiltration for....ab-95
Stampar, Andriya, new post....68
State Board Examinations....84
State, function, in medicine....E-61
Sterility, treatment, estrogen-gonadotropic.ab-91
treatment, roentgen....ab-94
Stomach, secretion in chronic arthritides.ab-100
Sulfanilamide treatment of puerperal infections....*14
treatment of tuberculosis....ab-97
Swimming Pool treatment of poliomyelitis..*32
Syphilis, treatment after arsenical dermatitis.83
Testis, undescended....*25
Tetanus toxoid, routine administration....82
Thiodiphenylamine phenothiazine: antiseptic.ab-93
Tongue cancer, lymph node metastases....ab-99
cancer, symposium on....69
Tonics and Sedatives....adv. page 18
Torticollis, spasmodic, quinine treatment....*12
Trachoma, International Organization against.72
Trichinosis....82
Trichomonas vaginalis vaginitis....ab-91
Tuberculosis problem in schools....OS-65
pulmonary, hypertension with....80
seminar, North Carolina....70
sulfanilamide treatment....ab-97
treatment, Brunson's....42
Tumor cells, x-rays effect on....74
Twining, Edward Wing, death....72
Twins, uniovular, pellagra in....ab-100
Urinary Tract infection, thiodiphenylamine phenothiazine for....ab-93
Urination, frequency....80
Urine, androgens, and "coloring" of women.*38
Viola, G., studies on constitution....75
Virilism from testosterone propionate....ab-92
Virus diseases not contagious during incubation period....83
Vision fatigue, symposium on....71
Vitamin C effect in pyorrhea....83
Vulvovaginitis in pregnancy....*30
Wagner, Gerhard, death....74
Western Reserve, student prizes at....70
Woman's Auxiliary....67
Wounds, surface, suture adhesive strips...ab-90
Yellowstone Valley Medical Society....69

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CHILD HEALTH IN NATIONAL DEFENSE

CHAIRMAN'S ADDRESS

EDWARD CLAY MITCHELL, M.D.

MEMPHIS, TENN.

The title of "Child Health in National Defense" was chosen for my theme in this address because it is obvious that the future of our nation depends more on the coming generations than on any other factor. Ours is a declining population. Stuart Chase, in the February *Atlantic Monthly,* states that there are more than a million empty desks in the elementary schools of the United States this year. In 1930 the total enrolment was 21,300,000; in 1938 it had fallen to about 20,000,000. It is impossible today to consider democracy without considering youth, as it should be impossible to consider children without considering democracy. "For the aim of democracy is the development of human personality through the process of growth in an atmosphere of freedom." In a democracy such as ours we cannot enforce Hitler's regimen of forced parenthood, but with so great a decline in population we should realize that now we must make a greater effort to conserve and protect the health of our American children. We may have wealth, we may have guns and other munitions, but unless we have men, America will not survive.

If we are to determine whether our nation is advancing along the road toward democracy, which is a way of life and not a completed achievement, we must review the conditions surrounding children, the opportunities open to them, and the safeguards afforded them. And if we wish to test ourselves to determine whether in our own lives we are following the ethics of freedom, we can do no better than to test our attitudes toward the individual children with whom we come in contact and toward all the children for whom we share responsibility as citizens of a local community, our state and the nation.

This presentation will embrace, first, a review of the role the American physician has played in the past in national defense; second, how the physician can best serve the public in this great peace movement, which is probably more important as a means of national defense than in actual time of emergency of war; and, finally, a discussion of the various phases of health, including all those measures which will reduce infant mortality and give the future citizens a healthy body and a healthy mind.

Read before the Section on Pediatrics at the Ninetieth Annual Session of the American Medical Association, St. Louis, May 17, 1939.

THE AMERICAN PHYSICIAN IN NATIONAL DEFENSE

In 1918, 19,692 physicians left their practices and entered the service of the United States. These volunteers included men of all ages, from the recent graduate to physicians beyond 50 years of age. The specialists with the largest income offered their services. From my personal knowledge I know that many physicians paid more in income tax the first six months they were in service than they received from the government in salary. They entered the training camps, were drilled and, as many of you know, were made to police their own camps. This was a hardship but there were no complaints. Nor was their position without danger. Many were killed and a large number were unable to return to their practices because of physical disability incurred as a result of disease or actual wounds received in battle. Many returned home to find their practices lost. In numerous instances it took years to rebuild this practice, and as a result their families suffered.

After the war, many physicians in the service were not satisfied to go back to the rural communities to practice medicine. The government offered short postgraduate courses. As a result, many became specialists and practiced in the cities. This left a dearth of general practitioners and a dearth in rural medical care. This situation has now been materially improved, largely through the efforts of the American Medical Association.

The medical student is being trained first to be a physician capable of giving good service in all branches of medicine and surgery. Before qualifying as a specialist, applicants must have at least five years' preparation and then must pass a rigid examination. This protects the public by increasing the number of general practitioners and insures the training of those recognized as specialists.

On March 1, 1939, there were 112,210 physicians enrolled on the official membership of the American Medical Association. There are in the United States 2,205 physicians who limit their practice to pediatrics. Of this number 1,006 have been certified by the American Board of Pediatrics. In addition, the records show that there are 2,166 general practitioners who have declared themselves as especially interested in pediatrics yet do not limit their work to this field. The number of specialists is therefore small. Thus the responsibility for the success of our endeavors to promote child health falls largely on the family doctor not only because he is available in every community of the United States but because he has the confidence of the people. The pediatricians or specialists in other fields, while necessary, are too few to solve this problem other than in an advisory capacity.

HOW THE PHYSICIAN CAN BEST SERVE THE PUBLIC

Legislative and municipal control, while helpful, have not solved and in the very nature of the case cannot be expected to solve the complex details of the problem of child health, when the problem is measured in nation-wide dimensions and when the nation is a democracy. I believe that an effective first step toward our objective is a coordinated program of education of the public in accepted methods of immunization and in the newer knowledge of general care and nutrition of the child. This must be the task not of the obstetrician or of the pediatrician or of any one special group of lay or professional instructors, but of every physician, especially the general practitioner in his individual contacts.

A few years ago region II of the American Academy of Pediatrics held a joint meeting with all the state and many of the city health commissioners of the South. It was the opinion of those who attended this gathering that the health official could best serve by devoting his efforts and also his available funds to a plan of education. They further stated that they could spend their budget to better advantage not only for the education of the public but for education of their own personnel of physicians and nurses. When each physician becomes health minded to the extent of advising his own clientele, results would improve because of closer cooperation between the health official and the practicing physician and there would be less friction.

The prevailing teaching now is to keep the child well. The young physician is being encouraged to act as an adviser to his clientele in all health matters. Summary postgraduate courses are being instituted with particular emphasis on the maternal, antepartum aspects and care of the well child.

Every American child deserves, if possible, and the interests of the state demand a healthy body and a proper environment. In fact, a vital consideration in any plan of national defense is the physical quality no less than the psychologic stamina of its citizenship. The physical quality of the adult citizen is largely determined by prenatal factors—a good inheritance and early childhood care.

In this connection it seems appropriate to mention a project which has been undertaken by the American Legion, which has adopted child health as one of its major projects. It has been demonstrated to this body that this is one of the means of protecting our great democracy, of promoting national defense. Hitler and Mussolini did not begin to work at once; they began to develop the youth of their countries, first, to give a strong body, then to raise them as nationalists from the beginning; thus, after several years their strongest support is in the young men, the coming generation. While we do not wish to create a race of "goose-steppers," we should be concerned over the fact that we are not altogether raising a race of Americans. Those who wish to weaken us are smart enough to realize that insinuating propaganda should be begun during childhood, that as the child is raised so will he remain; that early impressions are lasting.

When the British conscription act was announced late in April the German press was amused and sarcastic—the substance of what they said was this: "The English conscript is physically the worst in Europe."

FIVE YEAR PLAN OF THE AMERICAN LEGION

The American Legion is very much interested in a five year plan. The first year's work is devoted to disease prevention embodying a sort of modification of the Indiana Immunizing Plan, the second year to nutrition and its problems. The third year the physically handicapped child will be considered. The fourth and fifth years are left open so that the planning committee may be in a position to take advantage of the discoveries of the first, second and third years in order that it may more properly advise the work of the fourth and fifth years.

This plan should be considered in its broadest sense: that of producing a better next generation. The American Legion has approximately 1,000,000 members. The Auxiliary has 464,865. There are 11,506 posts. At the present time they are starting the Sons and Daughters of the Legion. They are represented in every town and in many villages and rural communities. They have the affiliated organization of the Forty and Eight, which is also strong. The Auxiliary, particularly, is interested in child health and wishes instruction. The potentiality of such an organization is obvious if its energies are rightly directed. One can also see what might happen if those energies were directed into the wrong channels.

The program contemplated by the American Legion has been to appoint a central committee to suggest a general plan for each year, taking up each year the one phase of child health that seems most urgent; to adopt a five year plan, working with the existing organizations, and then next year take up another plan. Physicians should have a general plan each year but administer it separately through the states, because, as has been explained, we have the same problems but not the same method of approach. Let us take up through their various states and local posts this subject, making it a purely educational program. Let us put these women particularly to work in their various communities. If necessary, let them make a house to house canvass.

The subjects for especial consideration for this next year are:

1. Conservation of the child's own home for the child.
2. Eradication of congenital syphilis in children, particularly through antepartum and maternal care.
3. Insurance of child health.
4. Control of communicable diseases.

While each state has its separate program, these especially selected yearly subjects should be nationally considered. The month of April is emphasized as "Legion Child Welfare Month." There is a general meeting in Indianapolis for the purpose of studying the need, the results accomplished, and outlining a program for the coming year.

At this point I should like to call attention to certain happenings that occur in every community often assuming many of the attributes of an undiluted racket. I refer to the "baby show," where on some occasions hundreds of children are brought together. It is under these conditions that the communicable diseases are bred, and these gatherings of babies for exhibition are of no advantage whatever to any one. There is often a solicitation of funds, which is, of course, the primary purpose of the baby show. And these solicitations of funds for an indefinite purpose, though ostensibly connected with a phase of child health, cannot be too severely condemned. It is in connection with these solicitations that large amounts of money are raised and wasted that might be put to so much better use.

I feel that I should suggest too that the poorly trained social worker and the improperly trained nurse repre-

sent conditions that should be carefully examined into. Too much public money is raised, spent and wasted on undertakings lacking a definite plan. We are experimenting too much—not too little—ill advised research when work of far more valuable character is overlooked. There is the work of Dr. Tom D. Spies at Birmingham, Ala. Dr. Spies is doing a remarkable piece of work in the field of nutritional disorders of Southern children, particularly among the economic underprivileged who are unable to obtain proper foods and are suffering from pellagra and allied disorders. Yet this most valuable work is poorly supported while you and I know of millions that are wasted in nearly worthless research.

I feel that it is very proper in a paper of this character, where I am positively pointing out what should be done, that I, at the same time, should in a negative sense point out certain practices and certain happenings that must be, in the interest of child welfare, eliminated.

Every community has very similar problems in health, but communities differ in their solution to these problems. In Memphis we have a health problem which is geographic—any statistical measurements are apt to be misleading. From the states of Arkansas and Mississippi, as well as from communities in West Tennessee, come patients who use our hospital facilities, resulting in a death incidence that has no relation to our local conditions. Our child mortality was very high, but this percentage is influenced by neighboring states making use of our facilities rather than a serious local unexplained child health condition.

Then in all Southern communities there is our accentuated health problem that a Negro population presents. Improved sanitation, improved living conditions and free public clinics are making their contribution to the welfare of the Negro child. But the surface is hardly scratched—there is much work to be done.

The American Legion states that "socialized medicine" has become a very controversial subject. The American Legion cannot enter on the controversial elements of this subject. However, there is no controversy on the subject of community and individual protection and prevention of disease and adequate care of the child. A program acceptable and suitable to use both by the medical profession and by lay groups must be practical and simple in its application.

In April, at the White House, President Roosevelt as honorary chairman formally opened the fourth of a series of national conferences on child welfare held in Washington under presidential auspices at intervals of approximately ten years. Experts and social workers with a wide variety of experience and interest in children's problems considered "the objective of a democratic society in relation to children; the essentials which such a society must provide for children if they are to be happy and society is to be secure; the meaning of our social institutions as they appear to the child; the need that he has to find joy and zest and purpose in living, to look forward to the time when he will play his part in his community and his country."

PRACTICAL BASIS FOR IMPROVING CHILD HEALTH

Probably we have been approaching the subject of "child welfare" in the wrong manner; it seems to me that we have been attempting to build the house before laying the foundation, that in the past too much of our philanthropy has been misdirected, that sentimentalism rather than the practical realities of children's health problems have dominated. For these reasons my purpose is to reduce the whole problem of child health to such a practical basis that it may be related to national defense, to a fuller democratic life and to a proper educational appreciation.

There are three classes of persons in the United States—the well-to-do, the great middle class and the indigent. The well-to-do are solving their own problem but still can be benefited by proper instruction. The poor are being taken care of by local, state and national assistance. But the great middle class, the backbone of the nation, are the ones most neglected. By beginning with the child, giving him a healthy body from birth, immunizing against disease, much illness with its high cost during the period of growth will be eliminated. The great middle class is only too willing to give their children every protection if properly instructed.

Does this great class dream of what their children will be like? "How can they be imbued with ideals which will guide them in decades which may be more difficult than that in which we now live? Will our civilization present to them values which will seem to warrant effort and sacrifice? Will it offer to them hope in an emerging justice, a basic security on which they can build lasting personal relationships?"

"These questions cannot be solved by any group of people in any single year. If the Conference on Children in a Democracy and the program adopted by the American Legion help us to define those basic values in a free society which must be cherished and defended at whatever cost, from generation to generation, they will have served the purpose which the President and the members of the American Legion have set before them."

The American Medical Association was organized in 1847 for the purpose of providing medical care for the people of the United States. It has through its members outlined medical education, controlled medical practice. The bulk of its members is composed of the practicing physician, the family doctor.

Finally, I wish to appeal to the members of the American Medical Association to accept the responsibility of child health education in their respective communities; to the specialists to assist by giving the family physician and his clientele the benefit of his special knowledge; to the people themselves to consider carefully before they listen to certain propaganda which classifies this great association as a trust or octopus that should be destroyed, for fear that they might destroy, instead of an octopus, a friend who has striven for many years to provide the best of medical care.

In concluding, I would like to summon the medical profession—the specialists, the general practitioner, the social worker, the nursing profession, the welfare associations—in fact, all of those groups definitely interested in the improvement of child health and child life to combine so that their combined influences may eliminate from our American life disease, ignorance, poverty, propaganda and politics.

1073 Madison Avenue.

Clinical Omniscience.—In the attempt at clinical omniscience, learning drifts into superficialities and is not profound, for there is little time for critical weighing, for sorting, or comparison, and therefore there is little correlation of observation and simplification of ideas. Intensive clinical training, as this exists, leads in general to no real grasp of the problems set by disease or of means of solving them; it is too purely observational for this.—Lewis, Sir Thomas: Research in Medicine and Other Addresses, London, H. K. Lewis & Co., Ltd., 1939.

MARIHUANA: A PSYCHIATRIC STUDY

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For almost ten years, marihuana smoking in the United States has engaged the attention of police officials, narcotic officers, prosecutors, judges and physicians. With its spread, the attention given marihuana in the press has increased. It is frequently a theme in contemporary literature; even the stage and screen have exploited its theatrical possibilities.[1] It has been blamed in the press and by responsible officials for insanity, suicide and crime, especially among the youth of the country, and is fast attaining the position of a public enemy. In 1931 the International Narcotic Education Association in its Geneva convention acted to include marihuana (hashish) in an international treaty for the limitation of the distribution of narcotic drugs. The marihuana excise tax law was enacted by Congress and made effective Oct. 1, 1937. It makes the use of marihuana, except by qualified persons, illegal. The penal code, based on the uniform narcotic drug act in the public health law in New York, as in other states, classes marihuana (cannabis) with opium derivatives and cocaine, and its use or sale constitutes a crime.

In 1934 [2] I reported eleven cases from the Bellevue Hospital of mental reactions induced by smoking marihuana and reviewed the literature on the subject. The present paper brings that material together and includes subsequent study of the problem and observations made since 1934.

The drug is a product of the flowering tops of the hemp plant (Cannabis americana or Cannabis sativa). In America the name marihuana, which is said to be a corruption of the Portuguese "maraguango," meaning intoxicant, is used. It has numerous picturesque names, such as muggles, reefers, Mary Warner, Indian hay, the weed and tea. The hemp plant, a tall bush with long green leaves, is cultivated for hemp fiber in the midwest and also grows wild throughout the nation. The method is to roll the dried flowering tops into cigarets. The leaves and flowering tops of the plant are covered by a resin whose composition is unknown. Government chemists, especially Blatt,[3] Wollner [4] and Matchett, found five fractions in cannabinol, the alleged active principle. The Beam test, hitherto regarded as specific in detecting the active principle chemically, has been found of no value. The chemistry of the drug needs and is undergoing thorough revision. However, for practical purposes, marihuana, hashish and cannabis may be considered synonymous.

Legend envelops the origin of the use of cannabis, and Walton [5] has recently described its fascinating history. In the latter part of the nineteenth century and the decade beginning the twentieth century, there was a revival of interest in hashish as a substance for studying sense perception in laboratories of experimental psychology. S. Weir Mitchell, William James and others worked with it.

Recently marihuana has been alleged to be the frequent cause of crime, such as assault, murder, rape and robbery, and of suicides,[6] especially among young people. The Foreign Policy Association [7] listed ten cases of atrocious crimes committed by persons under its influence. Frequent reference is made to a report by Eugene Stanley,[8] district attorney of New Orleans, a hotbed of marihuana usage, in which he stated that, among 450 men indicted for major crime in New Orleans during 1930, 125 were marihuana addicts, slightly less than half the total number of murderers were addicts and from 18 to 20 per cent of all persons tried for larceny, robbery and assault were users of marihuana. The League of Nations subcommittee received a report from Dr. J. Bouquet,[9] acknowledged to be a world expert on cannabis, in which he stated that "the use of cannabis, whether smoked or ingested in its various forms, undoubtedly gives rise to a form of addiction which has serious social consequences (abandonment of work, propensity to theft and crime, disappearance of reproductive power)."

The experience which forms the basis of this paper was gathered in the Bellevue Hospital and the Psychiatric Clinic of the Court of General Sessions (having jurisdiction over felonies in New York County) over a period of six years. Persons brought to the hospital are those showing overt mental symptoms; hence the vast proportion of marihuana smokers in New York City probably do not reach medical hands.

PSYCHIATRIC OBSERVATIONS

There has been considerable literature on the intoxication and insanity-producing effect of cannabis in papers from Asia,[10] Europe [11] and the United States.[12] To sum up this material, it can be said that the syndromes are of three types: (*a*) intoxication, (*b*) toxic psychosis, with or without an admixture of other types of mental reactions (schizophrenic, manic-depressive), and, according to Eastern European and Asiatic observers, (*c*) chronic dementia and deterioration following prolonged use. Apparently the third type, a deteriorating process, has not been observed in American clinics.

My experiences with mental conditions following the use of marihuana indicate that there are two categories of mental reaction: (1) acute intoxication (marihuana psychosis), containing sensory, motor and subjective elements, lasting from several hours to several days, often with anxiety or hysterical reactions, and transient panic states or depressions, and (2) toxic psychoses, including (*a*) those in which there are many admix-

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From the Bellevue Hospital and the Psychiatric Clinic of the Court of General Sessions, Dr. Karl M. Bowman director.

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tures of a disturbed sensorium with delusional and emotional reactions amounting to a psychosis, but with the common characteristic toxic signs, and (*b*) atypical functional psychoses which are initiated by marihuana or colored by marihuana in their symptoms but continue in the form of the underlying psychosis, the marihuana-induced state apparently representing an incipient stage in the psychosis. There were fourteen cases of acute intoxication and seventeen of toxic psychosis in our series (table 1).

1. *Acute Intoxication* (*Marihuana Psychosis*).—The distinction between acute intoxication due to marihuana and psychosis due to marihuana depends on the severity of the symptoms. Acute intoxication, induced by smoking from one to four cigarets, brings about after an interval varying from one half to five hours one or all of the following symptoms: an increase in motor activity, a feeling of excitement, mental confusion, disorientation, crowding of perception, elementary visual illusions and hallucinations, euphoria and talkativeness. In addition, numerous subjective experiences occur, such as increased speed of thought processes, a feeling of intellectual brilliance, change in time perception, various somatic feelings, hunger, dizziness, a feeling of swelling of the head, lightness of the extremities, a sensation of walking on air, lengthening of the limbs and sexual illusions. Usually the sexual excitement is caused by the fact that the possible sexual objects become extraordinarily desirable. It is not so much a matter of increased potency as of increased reaction to sexual fantasies and illusions. One patient said "I saw black and white women lying in bed with legs separated, as if expecting men . . . some women in the park with nothing on, doing nasty dances, moving their hips. I chased after them." Others stated that women appeared amazingly beautiful. One patient said "In the subway I felt very sexy. I wanted to touch every woman who passed."

The speeded-up physical motility has its counterpart in rapid speech. There is a feeling on the part of the subject that he is witty, even brilliant; his ideas flow quickly and words come readily to his tongue. Conclusions and answers seem to come to mind ready formed and surprisingly clear, without the effort of thinking. This feeling of clarity is of course spurious. Actually the productions of the intoxicant are hard to follow, for when the subject wishes to explain what he has thought there is only confusion. The rapid flow of ideas gives a subjective impression of brilliance of thought and observation. The sense of increased speed of thinking apparently has an effect on memory; hence the confusion that appears when the subject tries to recall what was thought during the intoxication.

The smoker finds it pleasant to be with others and to impart his experiences to them. This is reflected in the fact that marihuana is ordinarily smoked at parties or in groups. It is felt that this need for a social setting is a reaction to an inner anxiety arising from the threat of bodily destruction implied in somatic illusions induced by marihuana. In the ordinary case of marihuana smoking, especially when the subject is used to the drug, this threat becomes converted to euphoria, which develops to uncontrollable fits of laughter. Nevertheless inquiry shows that almost every smoker is aware of definite uneasiness at the outset of the intoxication. The descriptions from smokers in Harlem and from experimental subjects agree on this point. In the words of a user of two years' standing, initiates "shrink together, feel tight inside and get frightened." After they smoke it more than once, the reality of these frightening somatic illusions becomes less. In occasional instances, and these are the cases which are apt to come to medical attention, the anxiety with regard to death, insanity, bodily deformity and bodily dissolution is startling. The patient is tense, nervous, frightened; a state of panic may develop. Often suicide or assaultive acts are the result. The anxiety state is so common in patients admitted to the hospital for uncomplicated marihuana psychosis that it can be considered part of the intoxication syndrome.

Notes taken on experimental subjects who were psychologically trained [2] illustrate these points:

The first subject smoked two cigarets within forty minutes. Immediately after the second a feeling of lightness in the vertex of the head was felt. The head was expanding; there was a feeling of mild excitement. Now the head felt heavy and there was a definite feeling of lengthening in the legs and a tension in the back muscles of the thigh. The head felt alternately light and heavy. There was a sensation as though the top of the head were lifted, with about a 4 inch increase in height, accompanied by optic images of skulls and skeletons. There was a feeling as of the arms rising up in the air. The subject was aware of a feeling of confusion. Suddenly he saw terrifying images of legs and arms in a dissecting room.[1]

The second subject smoked two cigarets. He said: "I feel a little euphoric at first, but with the first draw my heart feels faster and my eyes a little heavier. I feel myself perspiring all over and shaking. I can feel a slight dizziness. I feel weak; the dizziness has left and I am perspiring." (He was asked to walk around the room. He refused to do so and became negativistic.) "On looking back I remembered that I had sexual thoughts during the time of the experiment. Time seemed to pass in a peculiar way, there being a combination of fastness and slowness. I took my first inhalation a few minutes after 9, and when I looked at the clock and saw that it was 10 after 9 I was very much surprised because it seemed like hours. The whole experiment seems now as if it lasted much longer than it did. Walking home I walked slowly in front of oncoming cars and felt a sense of recklessness connected with not being able to walk faster and not caring."

It is remarkable how much anxiety appears when one looks for experimental subjects among the public. The drug is popularly supposed to release aggressive and sexual impulses beyond the point of control; it is also regarded as being habit forming. The history and social connotation of hashish smoking strongly aids in the development of anxieties masking sexual fantasies and aggressive impulses of those who have not taken the drug. This has gone on almost to the point of mass hysteria. Walton has collected a great number of experiences of hashish users among literary and scientific men for the past century. The connotations regarding hashish have been absorbed by both the public and medical observers from these detailed reports, which feature voluptuous, languorous, supernatural and semidelirious elements following the use of hashish. While such experiences are authentic, it is important for public officials and medically trained observers to realize the literary background from which earlier reports of hashish usage sprang.

In clinical material, as indicated, the effects of marihuana range from mild intoxications to transitory psychoses which require psychiatric aid. The effects vary, and not all the symptoms occur in every case. Case 7 is illustrative of the marihuana psychosis with anxiety reactions and somatic sensory distortions:

CASE 7.—A white man aged 31, admitted March 27, 1934, with a history of having smoked just one cigaret, was depressed, retarded and apprehensive. He was oriented, and his memory showed no defects. Physical examination gave negative results.

He said: "My hand began to feel blue all of a sudden. I felt like laughing and I felt funny in my head. It was the queerest feeling I ever had. I felt like I was kind of fainting away like. I sweat and then I'd get kind of chilly. I got the scare of my life. I thought I was going to die and everything else. I knew what was happening all the time. I thought my hands were beginning to get blue. My throat began to get kind of dry. It was a little better than getting drunk. I did not want to step down from the curb—it seemed to be so high. I was sitting down and was afraid to get up." The patient improved and on the second day was less apprehensive and was pleasant and cheerful. He was discharged as recovered after two days.

Case 8 demonstrates visual illusions, which recall the megalopsia (the perceiving of objects as larger than they are) and the more common micropsia, which has been reported experimentally and clinically.[13] It is this type of illusion, induced by hashish, that may have been the basis for the story of Aladdin, who saw the tremendous genii emerge from his lamp spout in the "Arabian Nights" tale:

CASE 8.—A man aged *32*, an Irish-American, admitted Sept. 17, 1937, with a history of smoking marihuana cigarets two hours prior to admission, felt dizzy and wanted to commit suicide by jumping out of windows or bumping his head on the wall or floor. He was uneasy, apprehensive and impulsive. He said "I feel sick. I'm going through hell. I saw trucks coming at me getting larger, and I wanted to open the door of the cab and jump out." He was discharged as improved in his own custody about twelve hours after admission.

13. Drewry.[12] Bouquet.[9]

It is not uncommon to find a history of an admixture of other drugs or alcohol in cannabis intoxication. Frequently alcohol intensifies the symptoms due to cannabis.

CASE 4.—A man of old American stock, aged *27*, admitted June 18, 1933, at his own request, had been a chronic alcoholic addict and displayed definite evidences of a psychopathic makeup. He had marked inferiority because of his eyes and body structure. On admission he appeared to be apprehensive and a little excited, but he spoke coherently and relevantly. His experiences were rather clearly set forth: "I was down on the waterfront. A fellow gave me an Egyptian cigaret to smoke. It was of hashish. About an hour afterward I began to see things. I'd see things flying in the air. This made me laugh and I'd laugh at things not worth laughing at. Then I began to see green and other colors flowing before my eyes. Then things got black. I imagined people were following me and I screamed in my hotel and got kicked out. I still see red lines in front of my eyes and other different colors all stuck together. Then I began to hear bells that would get fainter and fainter and then start again. Imagined some one was after me all evening. I thought I heard footsteps and saw people ducking in and out of doorways behind me. At the time I said to myself 'Maybe it will affect my eyes.' I saw a big splotch in front of me—it was scarlet—very bright, exceptionally bright. It contracted, then faded away. I knew all the time it was due to hashish."

2. *Toxic Psychosis.*—Other toxic agents such as alcohol, other drugs and infective or other endogenous elements, may be involved. Disordered sensorium, excitement and agitation, retardation, blocking with

TABLE 1.—*Mental Reactions Due to Marihuana*

Case	Age	Sex	Race	Use of Cannabis	Diagnosis	Duration	Disposition
					ACUTE INTOXICATION (MARIHUANA PSYCHOSIS)		
1	24	♂	Negro	Once; a few cigarets	Confused, disoriented, dull and retarded, time disturbance, head "felt like a dream . . . grew bigger"	2 days	Recovered
2	28	♂	Negro	Once; 1 cigaret; chronic alcoholism	Restless and agitated, "queer ideas," death fear, suicidal fear, elation, somatic sensations ("head felt queer, unnaturally big, arms felt big"), sexual stimulation and time disturbance	1 day	Recovered
3	21	♂	Negro	Once; 1 cigaret	Excitement and apprehension, "felt funny, dizzy, thought I was poisoned," visual hallucinations and illusions, sexual stimulation, impulsive wild behavior, euphoria and sense of unreality	Several days	Recovered
4	29	♂	White	Once; 1 cigaret; chronic alcoholism	Visual hallucinations ("see things flying in the air," vivid colors, "different colors stuck together . . . big splotch of scarlet"), euphoria and laughter	7 days	Recovered
5	26	♂	White	Once	Talkative and restless, amnesia for name and family, sexual excitement, homosexual trends, somatic feelings ("I felt heavy in the legs, time went very slowly")	8 days	Recovered
6	29	♂	White	2 years sporadically	Depression with suicidal attempt, scratching of wrists, somatic sensations in trunk and limbs and visual illusions ("houses and people were crooked . . . my body felt distorted like a curved mirror . . . felt like I was flying"), cataleptic postures and later retardation	7 days	Recovered
7	31	♂	White	1 cigaret	Anxiety, depression over physical sensations, "queer feelings . . . fainting away . . . felt blue . . . sweats and chilliness," fear of impending death, apprehension, later euphoria and laughter	2 days	Recovered
8	32	♂	White	1 day	Apprehensive, suicidal impulses due to sensory illusions and dizziness	1 day	Recovered
9	19	♂	Negro	1 day; alcohol	Stuporous state, confusion and excitement, assaultive tendencies, somatic sensations ("felt funny . . . like walking on air")	1 day	Recovered
10	26	♀	White	1 year; addiction to aminopyrine diethyl barbiturate (peralga); alcoholism	Depression and suicidal tendencies, crying spells and irritability, visual hallucinations ("saw my dead brother")	3 days	Improved
	Readmission 7 months later			1½ years	Toxic reactions and sexual stimulation, complained of lack of will power to refrain from using alcohol and marihuana, feared enslavement to drugs	2 mos.	State hospital 2 months, discharged improved, psychopathic personality, depression, syphilis
11	19	♂	Negro	4 months; heroin	Depressed and affected by insomnia, personality change, acting queerly, withdrawn, despondent, "disgusted with life"	5 days	Improved, discharged in own custody
12	38	♂	Negro	Few days; alcohol (?)	Confusion and dulness, disorientation, apprehension, disorderly behavior ("ran in street unclothed"), visual illusions ("I see star-shaped figures")	3 days	Recovered
30	20	♂	White	4 months; alcoholism	Excitement and confusion, impulsive suicidal behavior, threatened to kill relative and self, uncontrolled yelling	5 days	Recovered
31	19	♂	Negro	2-3 years, 1 cigaret a day; heroin and alcohol	Confusion, apprehension, auditory hallucinations, somatic sensations ("made me feel light . . . did not seem to walk on ground . . . heard voices"), anxiety over somatic sensations	3 days	Recovered
					TOXIC PSYCHOSIS		
					Subgroup a		
13	23	♀	Negro	"Short time"	Manic-depressive picture, dulness and apathy, later agitation and talkativeness, visual illusions and hallucinations ("I see beautiful colors and designs—red, yellow, blue, green")	4 mos.	State hospital, discharged recovered in 4 months
14	19	♂	White	"Some time"	Depressive features, noisy, irrational, incoherent, auditory and visual hallucinations ("I saw a big ball and father's face in it . . . the buildings were in a circle in the sky"), later depression and apathy	2½ mos.	Improved

TABLE 1.—*Mental Reactions Due to Marihuana—Continued*

Case	Age	Sex	Race	Use of Cannabis	Diagnosis	Duration	Disposition
15	31	♀	Negro	Months	Schizophrenic reaction, surly aggressive behavior, visual and auditory hallucinations ("I saw signs in the sky like a person . . . the sun made rays so different, clear and beautiful . . . a kind of changeable color"), later apathy, evasion, persecutory delusions, negativism and emotional rigidity	5 mos.	State hospital, discharged to family, paranoid, schizophrenic
16	16	♂	White	Once (?)	Visual hallucinations ("I see all sorts of colors, yellow mostly . . . just masses. Sometimes a black cross . . . the devil knows evil thoughts in me"), somatic sensations, agitation, fear reaction to hallucinosis prominent	3 wks.	Discharged improved
	Readmission 5 months later				Schizophrenia, no marihuana, somatic delusions, religious ideas, guilty feeling over smoking, religious conflicts in foreground, ideas of reference, mannerisms, delusions	3 yrs.	State hospital, condition unchanged, schizophrenia, paranoid type, catatonic features
17	21	♂	White	Prolonged	Emotional excitement, chased people with ice pick, confusion, auditory hallucinations ("voices talk to me, I saw angels, see white lights"), irritable, unsocial attitude	12 days	Improved
	Readmission 2 months later				Schizophrenia, paranoid type, catatonic features	13 mos.	State hospital, paroled, improved
18	20	♂	Negro	5 months steadily; 1-5 a day	Toxic psychosis, paranoid features, euphoria, suicidal impulse, apathy, auditory hallucinations	3 mos.	State hospital, discharged, psychosis due to drugs, recovered
	Readmission after 2 months				Schizophrenia, paranoid type	6 mos.	State hospital, discharged much improved
19	21	♂	Negro	2 years; 2 a day	Toxic psychosis, apprehension, dulness, hallucinations ("people staring at me . . . they spit at me and throw snares")	5 days	Improved
	Readmission 10 days later				Persecutory delusions, hallucinations, clear sensorium, ideas of reference, schizophrenic picture	6 mos.	State hospital, recovered
20	33	♂	White	More than 2 years, 4-5 a day	Onset with seizure, positive Wassermann reaction of spinal fluid, visual and auditory hallucinations, continued seizures, disturbance of sensorium, depression "I see one big chicken . . . dark colored, I see dragons," cerebral syphilis, toxic psychosis due to marihuana	6 mos.	State hospital, discharged unimproved, schizophrenia, hebephrenic type
21	30	♂	Negro	10 years (?)	Toxic psychosis, schizophrenia (?), elated, excited, euphoric, assaultive, ideas of reference	9 mos.	State hospital, paroled after 9 months
	Readmission 3 months later				Schizophrenia, hebephrenic type	.....	Still in hospital (1938)
27	28	..	Negro	Year or more	Rambling, flighty, elated, at times apprehensive, somatic experience ("my head will bust if I hit it"), confusion and restlessness	5 mos.	State hospital, manic-depressive
					Subgroup b		
22	23	♀	White	7 months; chronic alcoholism	Psychopathic personality with use of marihuana, irritability, violent temper, unmanageable, two suicidal attempts, homosexualism with transvestite tendencies, behavior problem	7 mos.	State hospital, psychosis with psychopathic personality
23	20	♂	Negro	Long period	Personality change, withdrawn, sluggish and lethargic, emotional blunting, sensorium clear, excessive sexual activity, masturbation	10 days	Discharged improved
	Readmitted 1 year later				Toxic psychosis (?), schizophrenia, apathy and dulness predominant, feelings of reference, auditory hallucinations	6 mos.	State hospital, schizophrenia, paranoid type
24	24	♂	White	3-4 years	Manic-depressive psychosis, flighty, grandiose, resistive and irritable, with ideas of persecution, sensorium clear, sexual conflicts and effeminate mannerisms	10 mos.	State hospital, manic-depressive psychosis
	Readmitted 1 year later				Manic-depressive psychosis, two subsequent manic episodes in two years		
25	17	♂	Negro	Short time	Toxic psychosis with schizophrenic features, typical visual and auditory experiences, apprehension and confusion, later seclusive, resistive and mute	4 mos.	State hospital, schizophrenia, hebephrenic type
26	34	♂	White	1½ years, 1 daily	Depressive psychosis with marihuana features, suicidal attempts, dulness and apathy, ideas of reference, visual experiences and auditory hallucinations	3 mos.	State hospital, schizophrenia, hebephrenic type, paroled improved
28	24	♂	White	?	Schizophrenic picture, ideas of influence, auditory and visual hallucinations, emotional dulness, impulsiveness	6 mos., still ill	State hospital, schizophrenia, paranoid type
29	23	♂	White	4 months; alcoholism	Personality changes with schizoid features, ideas of infidelity, assaultive and homicidal threats, suicidal attempts, prolonged psychopathic behavior, paranoid and depressive features	.....	State hospital

emotional rigidity, hallucinations, sensations of somatic change and delusional experiences may appear. The psychosis lasts from weeks to months. Often the mental picture crystallizes into a schizophrenic or manic-depressive psychosis after several weeks or months (table 1). At the onset of the illness what can be considered characteristic cannabis symptoms are discernible. As the underlying functional psychosis develops, the toxic elements recede. Case 16 is illustrative.

CASE 16.—A boy aged 16, admitted Feb. 27, 1934, with a statement from the family that for two months he had been depressed, apprehensive and worried, scratching his hands in a nervous manner, prayed constantly. He complained that somebody read his thoughts. He was well developed and showed no physical signs, but was agitated and depressed and talked constantly in a bizarre manner about the devil influencing him. He said: "I felt light when I was walking—as if I weighed only 10 pounds. I felt like running; my whole body was light. I felt like jumping, as if I was walking on air. I felt happy. Then I saw yellow lights all around me. I saw blue and green too. The colors were more bright than usual. There are just masses of colors—sometimes I see a black cross with everything red behind it. That means there is a God. He is helping me. The devil knows the evil thoughts in me." This agitated condition was alleviated, and the patient was discharged about three weeks after admission, the diagnosis being a psychosis due to drugs, an acute hallucinatory episode.

The patient was readmitted August 1 with a depression with schizoid features. At this admission there were no evidences whatever of the sensory illusions and somatic feeling that he had had when he smoked marihuana. He was transferred to the state hospital, where he remained four years, his condition being diagnosed as paranoid schizophrenia with catatonic features. There he was restless and overactive. He had a marked push of speech, expressed ideas of reference and religious delusions and was manneristic. He said: "I figured the devil was trying to pull me away from God so I cut a cross on my arm. Physically I am the same, but mentally I am another person . . . I feel that people influence me by touching me—like injecting dope." Later he was manneristic, grimaced, was untidy, repeated practically all questions asked, answered briefly and usually vaguely and would say "I don't know exactly" or "I don't know." He remained dull, apathetic, indifferent and mute.

The personality factor is of undoubted importance in such cases. After the toxic state passed off in those cases in which the intoxication reached deeply enough into the personality, a basic psychotic state developed. At times the toxic features are in the background, the personality reactions being predominant. The inner relationship between cannabis and the onset of a func-

tional psychotic state is not always clear. The inner reaction to somatic sensation seems to be vital. Such reactions consisted of panic states which disappeared as soon as the stimulus (effects of the drug) faded.[14] It is generally known in psychopathology that when the perception of one's own bodily sensations is disturbed one is liable to be profoundly affected psychologically. Disturbances in perception of the body model (körperschema), which is built up of kinesthetic, tactile, visual and other stimuli and integrated into the core of the personality, elicit some type of reaction. Such disturbances act as a blow to the ego, invoking defensive reactions of anxiety, apprehension and projection, which approach schizophrenia or are schizophrenic in their clinical manifestations. Case 18 illustrates these points:

CASE 18.—A Negro aged 20, admitted Feb. 22, 1936, was said by his mother to have been "nervous" for some time; he said that he wanted to die, wanted to kill himself. Prior to admission his mother caught him with a bottle of compound solution of cresol. He had been depressed and despondent. He was of superior intelligence as measured by the army alpha test. On admission he stated that he had used marihuana for several months, and during this time he had heard people talking about him. They said: "Oh, what an ugly boy. How mean looking he is." For four months, from August to October 1935, he smoked from three to four cigarets a day, until he began to feel ill. At first marihuana made him happy. Then he felt that he made a peculiar noise in his throat; he ate once a day, was unable to sleep and experienced auditory hallucinations. The hallucinations had started four months before and increased gradually. He thought his face was changing. He looked thin, mean and ugly; he became self conscious. He felt that every one in the neighborhood knew it. He stated that at times he seemed speeded up, but his mind was keenly alert. With the development of the ideas of reference, he became self reproachful, apprehensive and fearful.

He was transferred March 13, 1936, to a state hospital, where he stated that his hallucinations had disappeared and his emotional reaction improved. After three months he was discharged to his home. Within five months he was readmitted to Bellevue Hospital, where he had gone in a state of panic and from where he was recommitted to a state hospital. He was tense and uneasy, retained ideas of reference and acted oddly at home, apparently in response to his delusions. The diagnosis on the second admission to the state hospital was dementia praecox, paranoid type, which was made about two years after the onset of the original illness.

Some patients showed the manic-depressive reactions, but these were in the minority. It is perhaps to be expected that schizophrenic-like psychoses are more common, because persons who take to drugs have some deep inadequacy to start with. The cyclothymic personality is less prone to require drugs:

CASE 27.—A man aged 28, who was brought to the hospital by his mother Feb. 13, 1938, with a history of having smoked reefers for some time, a year before had had an episode, was not hospitalized and improved from it. On admission he was confused, restless and apprehensive. He engaged in violent day dreaming. At times he appeared to be reacting to hallucinations. He said that he "had a big head." He became talkative, euphoric, elated and overactive after a day or so. He said: "The best thing for me to do is . . . you look fine . . . I've got to look like you. . . . I know what it is . . . when a Buick and a Packard get together." His speech was distinctly flighty and his behavior manic; he was constantly restless and would cry, sing and talk.

He was transferred to a state hospital February 24. There his condition persisted and he became somewhat depressed but showed promise of recovery a few months after admission. The diagnosis at the state hospital was manic-depressive psychosis, manic type.

14. Baker-Bates, E. T.: A Case of Cannabis Indica Intoxication, Lancet **1**: 811 (April 6) 1935.

Mixed reactions merged with the toxic psychoses. These reactions varied clinically, some occurring in chronic alcoholic addicts, some in schizophrenic patients and some in persons with psychopathic personalities, and in all of them the use of marihuana was a factor. It can be clearly seen that, aside from the direct toxic effect of the drug, the personality of the patient plays a tremendous part in psychotic states following the use of marihuana:

CASE 26.—A Cuban man aged 34, who was admitted March 6, 1938, to Bellevue Hospital, had jumped in front of a subway train without injury. He was very depressed, dull, lackadaisical and despondent. He was definitely underproductive but still strongly suicidal. He described taking one marihuana cigaret every day for a year and a half because it took his worries away. For some time he had been conscious that people were looking at him. He felt that his body was heavy all the time. Sometimes he heard deceased persons talking to him. He saw lights at times and at times a photograph of a strange person.

A friend corroborated the history, stating that the patient had been in this depressed condition for three or four years. He had a workhouse sentence for from two to three months in connection with marihuana. He was transferred to a state hospital March 18. At that time he was dull and preoccupied but had lost his hallucinatory and delusional trends. The state hospital diagnosed his condition as schizophrenia, hebephrenic type (?), and he was released after two months.

In some cases the drug makes relatively little difference in the content of the psychosis. It is for the clinician to determine how much marihuana influences the clinical picture. In South Africa, where dagga (the equivalent of marihuana) smoking is very widespread, a diagnosis of marihuana psychosis is made in the case of any "toxic psychosis in which there are very good grounds for assuming addiction to dagga smoking." It is felt that there should be more exact criteria, such as that outlined for a diagnosis of marihuana psychosis, by which I mean disorder sensorium, characteristic colored visual hallucinations, time changes and subjective and somatic feelings. One is apt to overestimate the place of marihuana in the causation of a psychotic picture:

CASE 28.—A white man aged 28, admitted Jan. 23, 1938, to Bellevue Hospital, had been in a state hospital in Arizona for three months about two years before and in one in Indiana for nine months four years before. He said: "I was smoking this marihuana weed (at the time of admission to the state hospital in Arizona). I ran around the desert for a time, ran out nights and one day knocked on a door and told a woman I was Dillinger. I tried to see how much water I could walk in. I was just like hypnotized and walking in my sleep. . . . Sometimes I feel like something's controlling me. Sometimes I feel just like I'm talking to somebody with my mouth closed. . . . I just ask them a question with my brain and they answer. Sometimes it's a man, sometimes it's a woman's voice . . . it just works in my temple. I think it's imagination. It's just like a dream. . . . People stare at me. . . . Sometimes I see different colors. I had that years ago—just like a light coming toward me; it's not a light, it's an arc."

His affect was flat, and he was dejected and slow speaking. He showed blocking and evasiveness on sexual experiences and had ideas of reference and persecutory ideas.

He was transferred to a state hospital, where he was preoccupied, underproductive and somewhat dissociated. He stated that he had some sort of seizures that were not really fits but that when he had them if he had a sword he would not mind cutting everybody's head off. He also believed that if anybody got killed near the place where he worked he would be blamed for it. He said that when he looked in bright lights he saw visions like all sorts of different colors, including blues and whites, and these seemed to blind him. A diagnosis was made of dementia praecox, paranoid type, and he is still in the state hospital after five months.

With psychopathic personalities, those with deep inferiorities, the use of drugs is a method of supporting the ego. Marihuana does not always produce the desirable effect. Apparently it is not strong enough to affect the problems which have involved the deeper layers of the personality. Such persons adopt heroin or morphine very soon after a short experience with marihuana. The experience of drug addicts seen at the Court of General Sessions confirms this. Persons addicted to heroin, morphine, cocaine or opium never return to cannabis. Such persons are admittedly psychopathic, in that they need an increment of drug to make their lives tolerable. In case 29 the use of cannabis represented the attempt of the patient to overcome his sexual inadequacy. In this respect the social psychology surrounding the drug is a factor, since marihuana is popularly supposed to free sexual inhibitions and aggressive tendencies.

CASE 29.—A white man aged 23, admitted to Bellevue Hospital March 31, 1938, felt unworthy and thought that he had a venereal disease. He had ideas of infidelity against his wife and was assaultive. He threw a 4 months old baby across a room. He turned gas jets on. On admission he was rambling, talkative, evasive, depressed and self absorbed and had somatic complaints.

He said: "I was sentenced to the workhouse for four months for smoking marihuana. I knew then I was not satisfying my wife and I thought it might help. A year ago some friends gave me the weed. I smoked several. I felt calm and liked to listen to music—very happy—exhilarating feeling—that's all." In the hospital he was talkative, discussed his problem in detail and showed some depression, which became less. The infidelity ideas and his sexual inadequacies concerned him most. He was transferred to a state hospital with a diagnosis of psychosis with psychopathic personality, cannabis a factor.

Often cannabis intoxication represents a stage in the incipience of a psychosis. The patient in whom a functional psychosis is developing strives to overcome the unconsciously perceived difficulties. In this sense the use of marihuana represents a healthy reactive tendency, even though the mechanism may be unknown to the patient. Case 23 illustrates this problem. A boy who had made a successful adjustment on a moderate level of social attainment began to show schizoid behavior shortly after beginning to use marihuana. The process continued to a psychotic state. What role did the drug play? Could the psychosis have begun without the drug? Was the use of cannabis the patient's attempt to cure his developing psychosis? These are problems needing careful judgment and study and wide clinical experience.

CASE 23.—A Negro aged 20, admitted to Bellevue Hospital Oct. 2, 1936, with a history of having been dull and indifferent for some time, insisted on keeping the windows closed and would not leave the house but denied that he heard voices. He would masturbate openly and made signs with his fingers, and other actions were decidedly peculiar. His mother stated that she caught him smoking a sweet-smelling cigaret with a white man and soon after got a history from his companions that he had been smoking marihuana cigarets for a long time.

Observation in the hospital confirmed his withdrawn, retarded attitude. Psychometric examination disclosed an intelligence quotient of 75, with a rating of borderline to dull normal intelligence. He was preoccupied in the ward; it was difficult to obtain his attention; he was evasive and offered many excuses for closing the window and putting out the lights. About ten days after admission he appeared a little more alert and cheerful. He was discharged in the custody of his mother with a diagnosis of incipient schizophrenia (?) or psychoneurosis, reactive state, Oct. 13, 1936.

He was readmitted a year later, Oct. 15, 1937. At that time his mother gave a statment that since he left the hospital he had been dull, staying in the house in a "deep study." He seemed to listen but did not say anything. At one time he beat up an old man in the house who, he said, called him names. He had attacked a woman for no apparent reason. He slept day and night. He often looked as though he was in a dream. He had had changed personality reactions for more than a year and for two weeks had been distinctly worse.

On admission he was sluggish, dull and lethargic, spoke in a quiet low voice and showed empty affect but was intact in intellectual functions, memory, comprehension and orientation. He was transferred on October 20 to the state hospital, where he was evasive and dull. He showed no interest in the surroundings and did not mingle with the other patients. He expressed mild ideas of persecution and of electricity and was evasive and suspicious. He said that some people across the street called him bad names and believed that an attempt was made to harm him. "I sometimes have a funny feeling in my legs (electricity)." The diagnostic impression included the possibility of dementia praecox, paranoid type.

Gradually he acquired an interest and became sociable with other patients. At all times he was neat and tidy in personal appearance and habits. He improved after five months and was ready for parole.

CRIMINOLOGIC ASPECTS

The history of the use of cannabis, especially in the Old World, indicates the relation between the drug and violent crime. The English writer Peebles [10] noted the high incidence in India of the use of hashish among the criminal insane. Of 652 cases studied, in 24.6 per cent the cause was found to be hashish. In Asia Minor and in northern Africa, among the Arabs, where the use of cannabis is high, it is conceded by officials that there is a direct relation between the drug and crime. Officials [15] state that dagga (hemp) smokers in South Africa, predominantly natives, steal, lie and tend to moral deterioration. Of the dagga users, 37 per cent were dangerous and 13 per cent destructive to property, according to the history. In the south of this country (New Orleans) the incidence of marihuana addicts among major criminals is admittedly high.[8] Sporadic reports from elsewhere in the country of murders and assaults due to marihuana appear in the press frequently. It is difficult to evaluate these statements, because of their uncritical nature. The bulletin prepared by the Foreign Policy Association [8] lists ten cases "culled at random from the files of the U. S. Bureau of Narcotics" of murder and atrocious assault in which marihuana was directly responsible for the crime. Among the ten patients, the second, J. O., was described as having confessed how he murdered a friend and put his body in a trunk while under the influence of marihuana.

J. O. was examined in this clinic; although he was a psychopathic liar and possibly homosexual, there was no indication in the examination or history of the use of any drug. The investigation by the probation department failed to indicate use of the drug marihuana. The deceased, however, was addicted to heroin.

Our observations with respect to marihuana and crime were made in the Court of General Sessions over a period of five and a half years. The material in that court is limited as to residence to New York County, although it must be remembered that the offenders come from many sections of the country and are of many racial types. This is important, because the British investigators have noted in India that cannabis does not bring out the motor excitement or hysterical symptoms in Anglo-Saxon users that occur in natives. There

15. Watt, J. M., and Breyer-Brandwijk, Maria G.: The Forensic and Sociological Aspects of the Dagga Problem in South Africa, South African M. J. **10:** 573, 1936.

are several other difficulties in collecting reliable material, one being the complete dependence on the history and statements of the prisoners without an opportunity for objective tests or other corroborative check, as in the case of other drugs, e. g. heroin or morphine. During routine interviews of some 17,000 offenders in six and a half years, several hundred have been found who had direct experience with marihuana. Their testimony checks with experimental results and clinical experiences with regard to the symptoms of intoxication, the absence of true addiction and the negative connection with major crime. Especially is this noteworthy among sexual offenders and in cases of assault or murder. The extravagant claims of defense attorneys and the press that crime is caused by addiction to marihuana demands careful scrutiny, at least in this jurisdiction.

Table 2 summarizes the cases studied. Of more than 16,000 prisoners, 200 were convicted on drug charges and found to be users of drugs although convicted of other charges. Cases of possession for sale are handled in the Court of General Sessions, which has jurisdiction over felonies.

TABLE 2.—*The Cases of 202 Marihuana Users Convicted Between 1932 and 1937 * in the General Sessions and Special Sessions Courts, New York City*

	General Sessions			Special Sessions	
Record	Charges: Possession and Sale of Drugs	Other Crimes	Total	Marihuana: Possession and Use	Total
No previous charge.....	19	1	20	93	113
Previous drug charges only.....	2	1	3	8	11
Previous charges including drug charges.....	3	11	14	5	19
Previous charges not including drug charges....	22	8	30	29	59
	46	21	67	135	202

* Prepared by Esther E. Boyd, A.B. research assistant.

* In this period there were 16,854 offenders in the Court of General Sessions (which handles felonies), of whom 200 were drug users, and about 75,000 offenders in the Court of Special Sessions (which handles misdemeanors), of whom 6,000 were drug users.

Of this group of 200, sixty-seven were users of marihuana in some degree whether convicted of the crime of selling marihuana or of another crime. The remaining 133 offenders were users of morphine or heroin. It is vital to note again that the only measure of the use of marihuana is the statement of the offender. Selling or possession does not establish usage or its extent if present. On this score one naturally meets evasion and denial fairly consistently. The most reliable source of information is the persons arrested for other crimes and questioned in the routine course of psychiatric study, who have contact with the underworld.

Of the sixty-seven studied, forty-six were convicted of possession and sale of drugs and twenty-one on other charges. Of the twenty-one convicted of crimes other than the possession and sale of drugs, eight were convicted of burglary, five of grand larceny, three of robbery, two of assault, one each of petit larceny, forgery and first degree murder and none of sexual offenses. Burglary, grand larceny and robbery, then, account for sixteen of the twenty-one. There were but two sex cases involving sexual offenses among the marihuana cases, in both of which sodomy had occurred as a previous offense. In three cases the prisoners were what might be called constant users of marihuana. One had commenced the use of marihuana three years before; another, with a sixteen year record, indicated that marihuana had been used for fifteen years; the third referred to his use of marihuana as of "several years' duration." None of the offenders reported any lasting effects from marihuana. Questions as to the habit-forming nature of the drug were all answered in the negative.

In only nine cases of the sixty-seven was the criminal record found to commence with a drug charge, indicating that there was not in those cases a close relationship between drugs and the beginning of a career of crime. One must bear in mind that this can be only a presumptive conclusion, in that the offenders may have used drugs without being arrested and thus coming into official statistics.

Most of the narcotic cases in New York County are heard in the Court of Special Sessions, where misdemeanants are handled and where indictments on charges of the possession of drugs for use are returned. In the Court of Special Sessions in the same six year period, of approximately 75,000 indictments for all crimes, 6,000 resulted in convictions for the possession and use of drugs. Since neither the law, the district attorney nor the police department makes any distinction between the several kinds of narcotics in arraignments or indictments, there were no figures from which to estimate the number of users of marihuana as distinguished from the number of users of other drugs. A system of sampling the 6,000 cases was therefore adopted in order to furnish an approximate estimate of the total number of marihuana users who came into conflict with the law.

In this sampling the records of 1,500 offenders, or 25 per cent of the 6,000, were examined. Of these, 135 were charged in connection with marihuana. From this fact it was estimated that about 540 offenders, or 9 per cent of all drug offenders coming to the Court of Special Sesions in six years, were users of marihuana. In analyzing this sample of 135 cases, it was found that ninety-three offenders had no previous record, the previous charge or charges of eight concerned only drugs, five had records including drug charges and twenty-nine had records not including drug charges. Among those with longer records, that is, from four to seven previous arrests, none showed progression from the use of drugs to other crimes.

As measured by the succession of arrests and convictions in the Court of General Sessions (the only method of estimation), it can be said that drugs generally do not initiate criminal careers. Similarly, in the Court of Special Sessions, only 8 per cent of the offenders had previous charges of using drugs and 3.7 per cent had previous charges of drugs and other petty crimes. In the vast majority of cases in this group of 135, then, the earlier use of marihuana apparently did not predispose to crime, even that of using other drugs. Whether the first offenders charged with the use of marihuana go on to major crime is a matter of speculation. The expectancy of major crimes following the use of cannabis in New York County is small, according to these experiences.

HABITUATION

The problem of habituation to cannabis is of grave importance. It should be remembered that marihuana has been used in conjunction with morphine, heroin or cocaine. Occasionally an astute drug pedler will adulterate marihuana cigarets with morphine or heroin in order to retain his clientele. Such a situation came to notice at Bellevue Hospital, where a youth was admitted for addiction to heroin acquired in this manner. Hence care must be exercised in evaluating the

question of habituation to marihuana to determine whether one is not dealing with adulterated cannabis.

The medical diagnosis of habituation can depend only on the accepted criteria of acquired tolerance and after-effects on withdrawal of the drug. Users of marihuana examined in the clinic invariably state that an increase in dosage is not necessary to achieve the desired effect as time goes on. The increase in cigaret consumption, if it occurs, is apparently related to how often the smoker wishes to experience the sensations produced. To my knowledge, the effects of withdrawal have never been systematically observed in a controlled environment. It has not been possible to observe satisfactorily marihuana users on their entrance into custody to establish their behavior after cessation of usage. For one thing, the law does not allow questioning of a defendant regarding his charge prior to trial. The fact that offenders brought up on marihuana charges do not request medical treatment on their incarceration (with its cessation of drug supply) argues for the absence of withdrawal symptoms. As is well known, users of morphine and opium become violently ill on being taken into custody and away from the source of their drug and are vociferous in their demands for treatment.

Nevertheless, the wide discrepancies between the reports of some jurisdictions and some physicians and those of the New York jurisdiction in the question of addiction to cannabis deserves thought. In the main, American authorities support the view that marihuana is not a habit-forming drug. Asiatic and European writers are not in accord with this opinion.[16] It is worth recording that, because of difficulty in this court in proving marihuana to be a habit-forming drug (*People* v. *Williams*),[17] the Law Revision Commission, appointed by the New York State Legislature, was requested to amend the Penal Code, section 1751, to read "narcotic" rather than "habit-forming" drug (March 26, 1938). The most that one can say on the basis of ascertainable facts is that prolonged use of marihuana constitutes a "sensual" addiction, in that the user wishes to experience again and again the ecstatic sensations and feelings which the drug produces. Unlike addiction to morphine, which is biochemically as well as psychologically determined, prolonged use of marihuana is essentially in the service of the hedonistic elements of the personality.

PSYCHIATRY OF OFFENDERS

It would be worth while to study the individual personalities of those offenders who had used the drug. All were given psychiatric examinations; of the sixty-seven, none were found to be psychotic. Three were said to have a neurosis, by which is meant a definite clinical neurosis or underlying anxiety, inferiority reactions and character defects clinically demonstrable. The diagnosis for twelve was psychopathic personality with drug addiction involving use of other drugs, and for one was psychopathic personality of the paranoid type.

The others presented personality difficulties[18] of varying types, being recognized as the aggressive type, emotionally unstable type, maladjusted adolescent type, immature type, egocentric type, submissive type and adynamic type. The remainder showed no personality defects other than the remote effects of a low cultural environment. None were considered mentally defective. The main group were within the limits of average intelligence. The psychologic status of the group was high average intelligence one, average intelligence forty-one, dull normal intelligence twenty-one and borderline intelligence four.

COMMENT

The clinical aspects of marihuana intoxication have been indicated in table 1, and a classification is presented. The marihuana psychoses reported in the American literature[19] vary only quantitatively from those reported elsewhere,[20] except that cases have not been reported of dementia as described in the Orient. When the intoxication initiates a functional psychosis or is part of an incipient psychosis, obviously the personality factors and the emotional reaction of the patient to the symptoms are more important than the purely physiologic cerebral effects of cannabis. In other words, every case of marihuana intoxication presents a complex picture which must be studied in the light of the individual case. The important problem of suicidal attempts following the use of marihuana has been indicated in the cases reported to represent the response to attacks of anxiety and panic reaction induced by the drug. Unquestionably marihuana is a dangerous drug from this point of view.

The physiologic psychology involved in use of the drug is of deep interest but will not be entered into here. I[21] have discussed this elsewhere.

SUMMARY

1. The rise of popular interest in the influence of marihuana on insanity, crime and addiction to drugs during the last ten years in many quarters of America points to the usefulness of a psychiatric review of the problem.

2. In thirty-one cases of insanity following the use of marihuana (marihuana psychosis) observed at the Bellevue Hospital, including eleven reported in 1934, the condition was classified as (1) acute intoxication, lasting from hours to days (fourteen cases), and (2) toxic psychoses, lasting from weeks to months (seventeen cases); often the toxic picture was superimposed on a basic functional mental disturbance, such as schizophrenia.

3. Marihuana is a contraband preparation of the hemp plant (Cannabis sativa) which contains the active principle cannabis. The common use is in cigarets. Smoking produces characteristic symptoms. It affects the emotional sphere, inducing euphoria and less commonly anxiety and apprehension, and the subjective world, involving feelings of unreality and aberration of the time sense. It induces feelings of bodily change, such as lengthening of the limbs and swelling of the head; it influences the motility, causing restlessness and excitement in varying degrees in different persons, and it produces mental confusion with possible visual illusions and hallucinations.

The basic personality of the smoker appears to be a vital factor in the development of a marihuana psychosis. Countless persons use marihuana without the development of an observable mental condition. Occasionally use of the drug represents the incipient stage of a functional psychosis. In such cases there appears to be an intimate relation between the dissociation in the patient's personality and the subjective effects of the drug, which tend to widen the dissociation and produce a psychosis. In the acute intoxication, no perma-

16. Walton.[5] Footnote 6.
17. Indictment 215079, January 1938 (acquitted).
18. Bromberg, Walter, and Thompson, Charles B.: The Relation of Psychosis, Mental Defect and Personality Types of Crime, J. Crim. Law & Criminol. **28**: 70 (May-June) 1937.
19. Yawger, N. S.: Marihuana: Our New Addiction, Am. J. M. Sc. **195**: 351-357 (March) 1938. Drewry.[12]
20. Kerim.[10] Dhunjibhoy.[10] Peebles.[10] Meggendorfer.[11] Baker-Bates.[14]
21. Bromberg, Walter: Effects of Marihuana, read before the Research Association for Nervous and Mental Diseases, New York, Dec. 27, 1938.

nent effect is observable by psychiatric examination after the effects wear off in from one to three days.

5. In sixty-seven cases involving marihuana from the Court of General Sessions, New York County, it was found in general that early use of the drug apparently did not predispose to crime. No positive relation could be found between violent crime and the use of marihuana in the cases observed in the Psychiatric Clinic. No cases of murder or sexual crimes due to marihuana were established.

6. The reported lack of increased tolerance and the absence of demonstrable withdrawal symptoms argues against the theory that marihuana is habit forming. The final solution of the problem of addiction waits on further experience and controlled experiment. The present study allows at this time only the statement that the use of marihuana is a "sensual addiction" in the service of the hedonistic elements of the personality.

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QUININE AND DYSTONIA MUSCULORUM DEFORMANS

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Dystonia musculorum deformans is characterized by excessive, involuntary, uncontrollable movements, some of which are choreiform and others athetoid, cerebellar-like or parkinsonian. It is a purely motor disturbance due, as Oppenheim [1] emphasized, to a combination of motor restlessness with muscular hypertonia and hypotonia. The clinical picture may for a long time be dominated by disturbances of posture and gait (the myostatic phase of Wechsler and Brock [2]) before muscular restlessness becomes evident. Such cases do not even suggest dystonia and therefore are usually labeled hysteria, chorea, athetosis or some other form of muscular restlessness. Because dystonia resembles some other clinical manifestations, there is a tendency to discard it as a clinical entity.

According to others, dystonia not only is a clinical entity but exhibits definite pathologic changes in some basal ganglions—caudate nucleus and putamen (corpus striatum). Neither of the foregoing views is correct, for, while dystonia is unquestionably a definite morbid entity, it is by no means established that it is an organic disease process. An analysis, for instance, of histologic changes in a typical case of dystonia of only several months' duration in a child justified the conclusion [3] that in this morbid condition the corpus striatum is not more involved than any other portion of the central nervous system; that such changes as were found in this case may occur in many other lesions of the central nerve system -degenerative, inflammatory or those caused by exhaustion. On the whole, the histologic changes in my case were not commensurate with the extent and severity of the clinical manifestations and may be considered the result rather than the cause of the hyperactivity of the neuromuscular apparatus. In short, the neurohistologic changes that have been described in a few cases of dystonia musculorum deformans are probably secondary or accidental, the motor restlessness being most likely caused not by morphologic but by physicochemical factors. These are probably similar to those which are at play in myotonia congenita (Thomsen's disease), in which the anomalies of the muscle tone—myotonic contractions—also are characteristic clinical features. Since the myotonic anomalies in Thomsen's disease can be favorably influenced by quinine, as they were first shown to be by Wolf,[4] it is only logical to expect an equally favorable effect from this substance on the anomalous muscular contractions in dystonia musculorum deformans, which, as has been emphasized, was justly considered by Oppenheim a disturbance of the muscle tone. The correctness of such an assumption was borne out by the following observations:

CASE 1.—*History.*—A Jewish girl aged 8 years, whose father was born in Poland and mother in Russia, had had difficulty in using her right foot since the age of 16 months. From this age on the child had walked on her toes, which when at rest would droop off and on, though she could move the foot in every direction. In walking, the patient dragged the right lower extremity; the gait was "jumpy, limping or dancing-like." At the age of 4 years the patient commenced to feel tired in the afternoon and would become "stiff." In the morning she would feel well. She was able to attend school, run and, in general, behave like a normal child. Three years later twitching occurred in the neck and all the extremities. The condition grew progressively worse in spite of various methods of treatment. The child, for instance, had been kept in a large hospital for five and a half months in a cast "from the waist down," and after the cast was removed the patient was unable to walk at all. Several months later, about a year before she was seen by me, she commenced to have "attacks" during which, while entirely conscious, she would become rigid and her head would droop over the chest and, like the extremities, exhibit spasmodic movements. In sleep the restlessness ceased. The two younger children (twins) were not affected by similar disturbances.

The parents were healthy and free from any mental or nervous anomalies, and the patient herself had had no other physical or nervous ailments.

Examination.—The patient was brought to my office March 8, 1938, in the afternoon, when, according to the parents, she always felt worse. The child was carried by her father, for she could not stand, walk or sit up because of violent grotesque twisting movements of the neck, trunk and upper and lower extremities. The patient's body was doubled up; the head was drawn over the chest and was in constant lateral motion; the legs were rigidly extended. When seated, the patient would assume a squatting posture, the feet inverted and the head supported by the hands. She was unable to relax her spastic extremities, which would become more spastic from attempts to change their position. The extreme restlessness that accompanied such attempts was associated with heavy breathing, palpitation of the heart, flushed face and profuse perspiration. The only position that afforded some relief during the attacks was lying on the abdomen or a so-called genupectoral posture, the knees flexed, the body bent and the head resting on the hands. An attempt to change such a posture would renew the restlessness. The patient's mental condition and cooperation were excellent. The cranial nerves, speech and sensibility were normal; the tendon reflexes were lively throughout; the Babinski sign was elicited only occasionally; atrophies, hypertrophies and deformities such as lordosis, genito-urinary anomalies and pupillary or fundus changes were absent.

I ordered 1 grain (0.065 Gm.) of quinine sulfate chocolate covered tablets, three times a day; the dose was to be increased

From the Department of Neurology and Neurological Surgery, University of Illinois College of Medicine, and the Cook County Hospital.

1. Oppenheim, Hermann: Ueber eine eigenartige Krampfkrankheit des klinischen und jugendlichen Alters (Dysbasia lordotica progressiva; Dystonia musculorum deformans), Neurol. Centralbl. **30:** 1091, 1911.

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3. Hassin, G. B., and Poncher, H. G.: Dystonia Musculorum Deformans: Clinicopathologic Report of a Case, Am. J. Dis. Child. **57:** 105 (Jan.) 1939.

4. Wolf, Alexander: Quinine: An Effective Form of Treatment for Myotonia, Arch. Neurol. & Psychiat. **36:** 382 (Aug.) 1936. Kennedy, Foster, and Wolf, Alexander: Experiments with Quinine and Prostigmine in Treatment of Myotonia and Myasthenia, ibid. **37:** 68 (Jan.) 1937; J. A. M. A. **111:** 198 (Jan.) 15) 1938.

to 5 grains (0.32 Gm.) three times a day. Unfortunately, the child's mother had lost faith in any kind of treatment, especially after her experience with the "cast from the waist down" and for two weeks the patient was given 1 grain of quinine a day. Some improvement was noticed even from the small doses, and these were increased to 5 grains three and afterward four and even five times a day. The improvement was striking. When seen by me for the second time June 15 there were no twitching, distortions, tremors or genupectoral postures. The child was able to handle objects and could write without difficulty. The letters were well formed and showed no signs of tremor. The reflexes were hyperactive as before, but the Babinski sign was not elicited. When she walked the feet, especially the right foot, assumed an equinovarus position; they would become slightly inverted and were dragged. At rest, especially when she was on her back, the spasticity would be replaced by muscular relaxation; coordination was normal in both upper and lower extremities, which exhibited good muscle power and no tremor. Whenever quinine was discontinued, slight muscular restlessness would reappear; but it was possible to reduce the dose of quinine to 5 grains twice a day and even to discontinue it for several days with no apparent discomfort to the patient.

Jan. 30, 1939, the condition was still very satisfactory except for the gait, which still was laborious, for the most part in the afternoon, when, as before the treatment, the patient was feeling tired, but she would become refreshed after a short rest of half an hour.

Aside from the improvement brought on by the quinine therapy, this case is remarkable also for other features: the unusually early onset of the dystonia, which set in at the age of 16 months, the earliest previously on record being the cases of Navarro and Marotta [5] (onset at 2 years) and of Fritz [6] (onset at 3 years); the onset with postural anomalies which for almost six years were the only manifestation of the disease and which persisted despite the remarkable improvement in the muscular restlessness or myokinetic features, as Wechsler and Brock designated this phase of dystonia.

The reverse picture (improvement in the postural phenomena) was observed in the next case. The patient was an adult, and the duration of the disease was much longer before the treatment with quinine was instituted.

CASE 2.—*History.*—A white unmarried woman aged 43, born in this country of Bohemian parents, was admitted to the outpatient neurologic clinic of the Research Hospital March 23, 1938, because of "nervousness" and twitchings, of about ten years' duration. The patient's sister and two brothers are living and well; the father died in an accident at 45. There was no similar condition in the family.

The patient was well nourished and cooperative and stated that she had been in good health until ten years previously, when her left hand commenced to shake. No involuntary movements were present at rest but on attempts to move the affected hand it would be seized with a tremor, so that the patient was unable to handle objects. The condition progressed, and within a year the neck and the other hand became involved. The head would turn toward the left and the chin would be drawn to the right, the contractions being associated with involuntary muscular movements in the arms and legs. The condition grew in severity and the patient had to give up her work (that of a clerk) since she was unable not only to handle objects but also to walk unsupported.

About five years after the onset of the foregoing complaints the patient occasionally experienced diplopia and some difficulty in articulation. Six months before admission she commenced to experience pain in the left lower extremity "from the hip down to the left leg."

Examination.—When the patient was admitted to the Research Hospital May 17, 1938, she exhibited marked involuntary muscular contractions throughout the body—in the neck, trunk and upper and lower extremities. There were marked slow, muscular contractions in the upper extremities and a tremor in the hands which increased on exertion, while the movements in the head were in the form of slow contractions which caused the head to turn to the left. The gait was slow, "deliberate" and in small steps, and the patient had to be supported because she often "stumbled."

The reflexes were hyperactive (4 + for the knees and the biceps) but the Babinski sign was absent. The motor power was fair in the upper but poor in the lower extremities. The cranial nerves, sensibility, pupils and fundi and serologic reactions were all normal. The speech was normal; only once was mention made in the records of a slight disturbance in articulation. While in the hospital the patient complained a great deal of pain in the hip, which was relieved by an epidural injection. For the dystonia quinine sulfate was prescribed in 5 grain doses three times a day. The improvement was gradual and by June, about three weeks after her admission to the hospital, the patient's gait had improved so much that she walked without support and did not stumble. The twitchings in the head and extremities, however, showed no change nor could the patient handle objects, which dropped from her hands. The dosage of quinine had to be reduced to 1 grain three times a day because of cinchonism, but one thirtieth grain (0.002 Gm.) of arsenic trioxide was added. In spite of the reduced dosage of quinine the shaking in the hands also showed improvement, Aug. 26, 1938. During October, November and December the patient had not been taking quinine, yet there was no tremor. The doses of quinine were increased to 5 grains three times a day. Improvement was so great that the patient was able to do housework without discomfort or dropping dishes. In the neck, twitchings were absent at rest and would be brought on only by excitement.

The "diplopia" and pain in the left lower extremity evidently had no relationship to the involuntary muscular contractions, for they both set in long after the onset of the dystonia, the pain probably having been due, as the roentgenogram showed, to an osteo-arthritis. The diplopia was only occasional and had not been complained of during the last four years.

Equally favorable was the action of quinine in a case of dystonia which ran as spasmodic torticollis:

CASE 3.—A white woman aged 43 was admitted to a medical ward of the Cook County Hospital Dec. 12, 1938, because of spasmodic contractions of the muscles of the neck. Three months prior to entrance to the hospital the patient lost her home and job (that of a house detective), and a week later twitchings in the neck developed which would draw the head to the left and backward. The twitchings would occur in spells, three or four times a day, and would last about five minutes. Bromides and phenobarbital gave no relief, and ten days later the patient was transferred to the neurologic service, where she was given 10 grains (0.65 Gm.) of quinine sulfate and hydrochloric acid three times a day. Already within four days there was evident improvement, and about a week later (December 30) a note in the nurses' record reads: "feels grand and holds up head quite well." When the medicine was discontinued the twitchings reappeared, though they were less intense. Valerianates and electrical treatment were substituted and also gave relief, but the results were by no means as favorable as from quinine. The patient was practically well at the time of the last observation (Feb. 14, 1939).

Without going into a discussion on the nature of spasmodic torticollis, justly considered by some a partial manifestation of dystonia musculorum deformans,[7] it should be emphasized that it is a most stubborn type of an involuntary muscular contraction. It is considered by the majority an organic disease and by others a functional nerve disorder; hence the name mental torticollis given to it by Brissaud. Such cases are not uncommon and, as shown elsewhere,[7] patients are usually treated, often successfully, by surgical methods. It is suggested to try treatment of such cases with large

5. Navarro, J. C., and Marotta, A. S., Arch. de méd. d'enf. **30:** 29 (Jan.) 1927.

6. Fritz, Joseph: Ein Fall von lordotischer Dystonie, Monatschr. f. Kinderh. **29:** 665 (Jan.-Feb.) 1925.

7. Hassin, G. B.: Schaub, C. F., and Voris, H. C.: Spasmodic Torticollis, Arch. Neurol. & Psychiat. **26:** 1043 (Nov.) 1931.

doses of quinine (at least 30 grains [2 Gm.] a day), which are also recommended by Lonergan and Paskind [8] in the treatment of myotonia congenita.

CONCLUSIONS

The muscular restlessness in dystonia musculorum deformans is, as in Thomsen's disease (myotonia congenita), probably a disturbance of the muscle tone.

Like myotonia congenita, dystonia markedly improves with quinine therapy.

Large doses should be given if possible; they are of decided benefit even in cases of so-called spasmodic torticollis, which is also known as torsion spasm (a partial manifestation of dystonia).

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SULFANILAMIDE FOR PUERPERAL INFECTIONS DUE TO CLOSTRIDIUM WELCHII

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Since the original report of Dobbin,[1] from this clinic in 1897, Clostridium welchii infections in the puerperium have been described by many observers. The literature up to 1928 has been adequately reviewed by Toombs and Michelson,[2] and since then significant communications have been added.[3]

Cl. welchii, known commonly also as Bacillus aerogenes capsulatus and the gas bacillus, is a rather short gram-positive rod, nonmotile and growing under fairly strict anaerobic conditions. It forms capsules in the animal body and under certain conditions readily sporulates. A so-called stormy fermentation of milk, with formation of clot, acid and gas, is characteristic. Classification into four types—A, B, C and D—is recognized, but only type A is met with in the human body. The organism is found in soil, water, milk, dust, sewage and the intestinal canal of man and animals. Its occurrence normally in the human vagina is debated, but investigation under way at the present time in this clinic lends support to the view that the Welch bacillus may be found in the lower portion of the human vagina in a certain number of cases and will be reported in a later paper. Hemotoxin and myotoxin are produced, accounting for certain characteristic clinical observations. Antitoxic serum is readily prepared by means of horses.

The symptoms found in puerperal infection due to this organism are those of an exceedingly acute and fulminating infection. Severe abdominal pain, vomiting and chills are invariably present. The temperature is usually elevated, there is marked tachycardia and prostration is extreme, with hypotension. It is characteristic that patients dying with this infection are usually mentally clear up to the time of death. Jaundice and a deep mahogany cyanosis due to destruction of the red blood cells by hemolysins are occasionally seen and may develop with great rapidity. The mortality is then practically 100 per cent. It is important to note that evidence of gas formation in the tissues, which is so commonly seen in surgical conditions, is found infrequently in obstetric infections due to this organism, even up to the time of death.

Puerperal infection with Cl. welchii is more common in postabortal conditions than in puerperal infections following the birth of a viable child. Figures given in the literature indicate that from 60 to 75 per cent of these infections are postabortal.

The mortality is extremely high. In reviewing the literature [4] available to us, we found a mortality of 85 per cent for patients receiving no specific therapy and of 47 per cent for patients treated with specific antiserum.

The use of high voltage roentgen therapy has been advocated by Kelly and Dowell [5] in the treatment of surgical gas bacillus infections. Recently Bohlman [6] and Kennedy [7] have reported the successful use of sulfanilamide for surgical infections, but as yet no statements are on record concerning the use of this drug for obstetric infections due to Cl. welchii.

It is the purpose of this communication to report (1) the treatment with sulfanilamide of two severe postabortal infections due to Cl. welchii, both with positive blood cultures, and (2) to offer experimental data concerning the effect of sulfanilamide in vitro on this organism.

REPORT OF CASES

CASE 1.—*History and Course.*—A. H., a white woman aged 27, a housewife, had been delivered spontaneously of a normal full term child in 1934. Her last menstrual period began Nov. 17, 1938. She was admitted to the medical service of the Johns Hopkins Hospital Jan. 6, 1939, because of long-standing hypochromic microcytic anemia, the result, presumably, of chronic bleeding from intestinal varices. Termination of pregnancy was advised because of this condition.

Accordingly she was transferred to the obstetric service the morning of February 23, at which time the first stage of a therapeutic abortion was carried out. The uterus was found to be enlarged to the size of a twelve weeks pregnancy. The cervix was readily dilated by means of Hegar dilators, and the lower uterine cavity and cervical canal were tightly packed with dry gauze. Shortly after 8 a. m. the following day (February 24) the patient had a slight chill and her temperature rose to 101.8 F. She complained of severe pain in the lower part of the abdomen. At 9 a. m. the second stage of the therapeutic abortion was carried out. The cervix was dilated readily with Hegar dilators, and, after culture of the uterine contents, the products of conception were removed with ovum forceps. No curettage was attempted. During this procedure the pulse rate rose to 160 and the temperature to 105 F. Blood for culture was taken at this time.

At 8 p. m. of the same day, eleven hours after the operative procedure, both blood and uterine material taken in the morning for culture were found to be positive for Cl. welchii. The blood culture contained one colony per 2 cc. of blood, and the uterine culture, in addition to a moderate growth of Cl. welchii, showed the presence of yeast belonging to the genus Saccharomyces in heavy growth. The patient was now critically ill and was extremely prostrated. She was cyanotic, breathed shallowly and responded poorly. The abdomen was greatly distended and

8. Lonergan, R. B., and Paskind, H. A.: Quinine in Myotonia Congenita, J. A. M. A. **111:** 2292 (Dec. 17) 1938.

From the Department of Obstetrics, Johns Hopkins University School of Medicine and Johns Hopkins Hospital.

1. Dobbin, G. W.: Puerperal Sepsis Due to Infection with the Bacillus Aerogenes Capsulatus, Bull. Johns Hopkins Hosp. **8:** 24-28 (Feb.) 1897.

2. Toombs, P. W., and Michelson, I. D.: Clostridium Welchii Septicemia Complicating Prolonged Labor Due to Obstructing Myoma of Uterus, with Report of Case, Am. J. Obst. & Gynec. **15:** 379-389 (March) 1928.

3. Wrigley, A. J.: Puerperal Infection by Pathogenic Anaerobic Bacteria, Proc. Roy. Soc. Med. **23:** 61-70 (Oct.) 1930. Hill, A. M.: Postabortal and Puerperal Gas Gangrene: Report of Thirty Cases, J. Obst. & Gynaec. Brit. Emp. **43:** 201-251 (April) 1936.

4. We excluded the reports of H. M. Little (Bacillus Aerogenes Capsulatus in Puerperal Infection, Bull. Johns Hopkins Hosp. **16:** 136-146 [April] 1905) and the Wongs (Wong, Amos, and Wong, D. H.: Bacillus Welchii Infection in Cases of Abortion, Chinese M. J. **47:** 877-887, 1933) in obtaining these statistics, as both authors included certain cases which obviously were not of true Welch bacillus infection.

5. Kelly, J. F., and Dowell, D. A.: Present Status of X-Rays as Aid in Treatment of Gas Gangrene, J. A. M. A. **107:** 1114-1118 (Oct. 3) 1936.

6. Bohlman, H. R.: Gas Gangrene Treated with Sulfanilamide: Report of Three Cases, J. A. M. A. **109:** 254-256 (July 24) 1937.

7. Kennedy, W. C.: Therapy of Gas Gangrene with Report of Case, Illinois M. J. **73:** 260-261 (March) 1938.

exquisitely tender everywhere to even the lightest palpation, so that the uterus itself could not be felt. Blood for another culture was taken at this time (subsequently yielding two colonies of Cl. welchii per 2 cc. of blood) and the oral administration of sulfanilamide begun in equally divided doses every four hours, as illustrated in chart 1. The following morning the patient was still critically ill and cyanotic, but by 8 p. m. of the same day (February 25) her condition showed marked improvement, despite the continued fever. She was brighter and responded well. Abdominal tenderness and distention had disappeared to a great extent, and the uterus, which itself was quite tender, was palpated a fingerbreadth below the level of the umbilicus. The lochia was moderately foul and profuse. Blood for culture taken at this time remained sterile.

On the morning of February 26 the improvement continued to be dramatic. There was no abdominal tenderness, and, though she was somewhat lethargic because of the sulfanilamide, her response to stimuli was excellent. Further blood cultures remained sterile. Daily determinations of the sulfanilamide in the blood were done, the level reaching 12.2 mg. per hundred cubic centimeters, as recorded in chart 1. Further vaginal cultures, of material taken February 28 and March 2, showed the continued presence of the Welch bacillus in addition to anaerobic nonhemolytic streptococci.

Additional laboratory data showed no change in the nonprotein nitrogen content or carbon dioxide-combining power of the blood during the course of therapy, 5.4 Gm. of sodium bicarbonate having been given daily in order to prevent acidosis. The icterus index of the blood serum remained within normal limits throughout, but urobilin was excreted in the urine in not inconsiderable amounts during the early part of her illness.

It is of interest to note that despite the intensive sulfanilamide therapy, a drop of only 1.7 Gm. (11 per cent) in the blood hemoglobin content took place.

The patient was discharged to the medical wards March 7 in excellent condition. Details of her course during the period of active therapy are shown in chart 1.

Bacteriology.—The organism isolated from the blood and from the intra-uterine material were identical. It was a gram-positive rod, growing luxuriantly in cooked meat mediums with the production of large amounts of a sour-smelling gas which

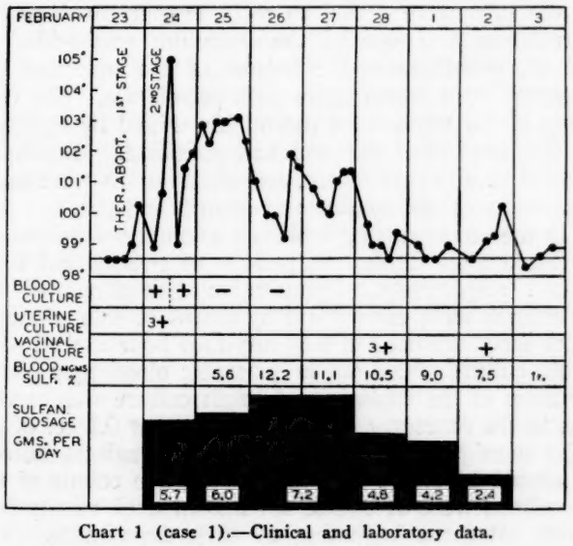

Chart 1 (case 1).—Clinical and laboratory data.

exploded when ignited. Motility was absent. Characteristic stormy fermentation of milk was produced readily. Gelatin was completely liquefied. The organism grew only under anaerobic conditions on defibrinated rabbit's blood agar plates, producing areas of complete hemolysis surrounded by a secondary area of incomplete hemolysis. This "double zone" hemolysis was observed even to better advantage in deep blood agar pour plates. A powerful soluble hemolysin for rabbit's blood was demonstrated. As little as 0.1 cc. of a twelve hour cooked meat broth culture injected intramuscularly into a 450 Gm. guinea pig produced death in thirty-one hours. Autopsy showed extensive necrosis at the point of injection, and a smear from the lesion revealed numerous encapsulated gram-positive rods. Culture of the heart's blood contained 31,000 colonies of Cl. welchii per 1 cc. of blood.

Pathology.—Microscopic examination of the placenta removed at operation showed a moderate amount of leukocytic infiltration between the chorion and amnion, which were well preserved. In this region, especially where the leukocytic infiltration was

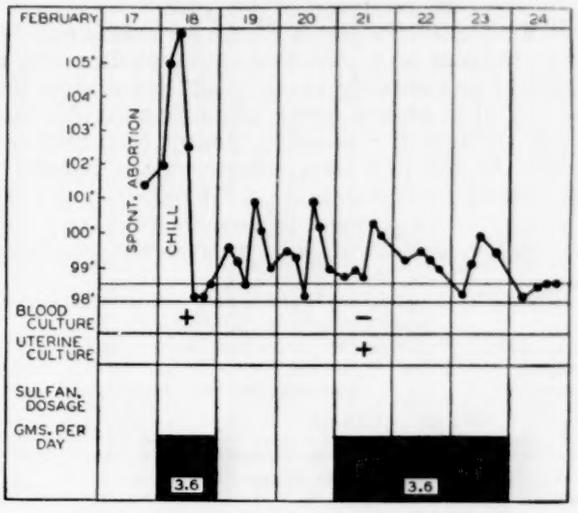

Chart 2 (case 2).—Clinical and laboratory data.

heaviest, numerous gram-positive rods were found. No evidence of infection of the chorionic villi themselves could be found.

CASE 2.—C. J., a housewife aged 27, white, had had five previous full term pregnancies and three spontaneous abortions. Her last menstrual period began June 11, 1937. She was admitted to the obstetric service of Johns Hopkins Hospital September 17 with the story of spontaneous rupture of the membranes and vaginal bleeding several hours before. She denied any attempt at interference, but told that an unsterile vaginal examination had been done by her physician shortly after the onset of bleeding. Some time after this she was seized with chills, fever and malaise. Examination revealed an enlarged, slightly tender uterus, moderate vaginal bleeding, a temperature of 101.4 F. and a pulse rate of 110. Six hours after admission she spontaneously aborted a 20 cm. fetus.

The patient had a severe shaking chill the next morning, after which the temperature rose to 105.8 F. Examination then revealed rather marked tenderness in the lower part of the abdomen as well as rigidity in both lower quadrants. The administration of sulfanilamide was begun, as illustrated in chart 2, but was discontinued at the end of the day, when the temperature had fallen to normal. However, when the blood which had been taken for culture at the time of the shaking chill was shown to be positive for Cl. welchii and the temperature began to rise again, the administration of sulfanilamide was resumed. Blood culture at this time was sterile, but intrauterine culture revealed the presence of Cl. welchii. The patient's clinical course and fever readily responded to this therapy. Details are given in chart 2.

In this case, identification of the organism was limited to morphologic examination and observation of growth in cooked meat mediums under petrolatum seal and the production of stormy fermentation in milk. The blood culture, unfortunately, was not quantitated.

COMMENT

In both the cases reported, sulfanilamide seems to have exerted a therapeutic action. This is especially striking in view of the extremely high mortality of obstetric infections due to the gas bacillus, as we have already noted. In Peckham's [8] analysis of deaths due to puerperal infection, whereas Cl. welchii was found in only 0.65 per cent of intra-uterine cultures taken as

8. Peckham, C. H.: Statistical Studies on Puerperal Infection: Analysis of 115 Deaths Due to Puerperal Infection, Am. J. Obst. & Gynec. **31**: 996-1003 (June) 1936.

a routine in cases of fever, this organism was found in 15.38 per cent of the cases of fatal puerperal infection. Hill [3] stated that 33.3 per cent of deaths due to abortion in the city of Melbourne, Australia, during the year 1934 were due to infection with the gas bacillus and that in his own clinic 48 per cent of abortion deaths were due to this organism. This figure is based on 1,565 abortions occurring in one year.

In the second case presented, the bacteremia may have been transient and, moreover, the organism was not identified as accurately as one might desire, since there are said to be several species of motile anaerobic bacilli which produce the so-called stormy fermentation in milk.[9] In the first case, however, there remains no question of the identification of the organism and demonstration of its virulence by animal inoculation. With two positive cultures of blood taken eleven hours apart,

Growth of Clostridium Welchii in 1 per Cent Dextrose Broth Containing Sulfanilamide

Concentration of Sulfanilamide, Mg. per 100 Cc.	Number of Organisms Added									
	1.8×10^8		1.8×10^6		10,000		100		9	
	Growth	Gas	Growth	Gas	Growth	Gas	Growth	Gas	Growth	Gas
	After Twenty Hours of Incubation									
Control	4+	1+	4+	1+	4+	2+	4+	1+	4+	2+
5	...	...	...	...	4+	1+	4+	1+	3+	1+
10	...	...	...	...	—	—	—	—	1+	±
25	...	...	...	...	—	—	—	—	—	—
50	...	...	...	...	—	—	—	—	—	—
100	4+	1+	3+	1+	—	—	—	—	—	—
200	4+	1+	—	—						
400	2+	2+	—	—						
800	Precipitate	1+	—	—						
1,000	Precipitate	2+	—	—						
	After Forty Hours of Incubation									
Control	4+	1+	4+	1+	4+	2+	4+	2+	4+	2+
5	...	...	...	...	4+	2+	4+	3+	4+	2+
10	...	...	...	...	4+	2+	4+	3+	4+	2+
25	...	...	...	...	4+	2+	3+	1+	3+	1+
50	...	...	...	...	Precipitate	—	Precipitate	—	—	—
100	4+	1+	4+	1+	Precipitate	—	Precipitate	—	—	—
200	4+	1+	Precipitate	1+						
400	2+	2+	—	—						
800	Precipitate	2+	—	—						
1,000	Precipitate	3+	—	—						

the patient's clinical appearance before administration of the drug and the dramatic response to the therapy, there can remain little doubt as to the specific action of sulfanilamide in this case.

The early diagnosis and immediate therapy of gas bacillus infections must be stressed, in view of the fulminating character of these infections. Toombs and Michelson's [2] review of the literature revealed that one third of the patients die within forty-eight hours of the onset of infection, and Dawbarn and Williams [10] reported a case of abortion in which the patient died nineteen hours after the first appearance of symptoms. In our first case, a diagnosis of severe intra-uterine infection with bacteremia was made twelve hours after the onset of infection, and introduction of therapy at this early period doubtless accounts for our success.

In cases of severe infection, with signs of marked toxicity, in which an early diagnosis has not been made, it would seem logical to administer both sulfanilamide and specific antiserum in massive doses, the latter for the purpose of neutralizing the toxins formed and the former in order to control the local lesion and the bacteremia. Sulfanilamide should be given in massive doses during the stage of bacteremia, at least 6 or 8 Gm. a day, divided into equal doses given every four hours throughout the twenty-four hour period. The concentration of sulfanilamide in the blood should be followed daily, and the usual precautions should be taken to determine the onset of toxic reactions as early as possible.[11] It is wise to administer sodium bicarbonate orally, in doses of from 4 to 8 Gm. a day, in order to prevent the development of acidosis.[12]

STUDY OF IN VITRO EFFECT OF SULFANILAMIDE ON CLOSTRIDIUM WELCHII

Bliss and Long [13] have studied the use of sulfanilamide in the treatment of experimental Cl. welchii infections in mice and in addition have observed a definite in vitro [14] effect on the organism. They found that the beneficial results obtained were due not to a bactericidal action of the drug on the organism but rather to a bacteriostatic action. Studies of the peritoneal exudate from infected mice indicated that sulfanilamide inhibited the growth and multiplication of the bacteria, thus allowing phagocytosis to control the infection effectively. On the other hand, Spray [15] has recently challenged any bacteriostatic activity of sulfanilamide on Cl. welchii in vitro. In view of this disagreement, we carried out a number of experiments testing the in vitro effect of varying concentrations of sulfanilamide.

The organism used in this work was that isolated in case 1. To sterile test tubes, each containing about 1 Gm. of sterile sand in the bottom of the tube, was added 10 cc. of freshly boiled beef infusion broth (p_H 7.6) containing 1 per cent dextrose solution and varying concentrations of sulfanilamide (the latter added after boiling the broth). The broth in the tubes was then capped with a 1 cm. layer of melted sterile petrolatum and the whole heated again in a boiling water bath to insure the absence of dissolved air. After the contents of the tube were cooled to room temperature and the petrolatum seal opened the inoculum was added in 0.1 cc. qauntities to the bottom of the tube and the contents were sealed again with petrolatum. The contents of the tubes were thoroughly mixed by agitation of the sand after the seal had solidified. Incubation at 37.5 C. was carried out, and observations were made repeatedly on the presence of growth and gas.

In the accompanying table is a summary of the results obtained after incubation periods of twenty and forty hours, respectively. Quantitative estimations of the inoculums were carried out by means of colony counts from serial dilutions of a twenty-four hour cooked meat broth culture plated out in anaerobic blood agar plates. Dilution of the cooked meat broth culture was carried out to the necessary degree in order that 0.1 cc. of the dilution might contain the number of organisms desired. It should be stated that the quantitative counts of the inoculums were of course not known until twenty-four hours after the beginning of each experiment. The degree of turbidity and the amount of gas formation are represented in the table by values from 1 to 4+, as determined by visual inspection.

9. Society of American Bacteriologists: Manual of Methods for Pure Culture Study of Bacteria (Committee on Bacteriological Technic), 1936, and The Study of Obligately Anaerobic Bacteria, ed. 3, 1937; Geneva, N. Y., Society of American Bacteriologists.

10. Dawbarn, R. Y., and Williams, Bryan: Three Cases of Cl. Welchii Infection Following Abortion, Brit. M. J. **2**: 279-281 (Aug. 6) 1938.

11. Long, P. H.; Bliss, Eleanor A., and Feinstone, W. H.: Mode of Action, Clinical Use and Toxic Manifestations of Sulfanilamide, J. A. M. A. **112**: 115-121 (Jan. 14) 1939.

12. Southworth, Hamilton: Acidosis Associated with Administration of Para-Amino-Benzene-Sulfonamide (Prontylin), Proc. Soc. Exper. Biol. & Med. **36**: 58-61 (Feb.) 1937.

13. Bliss, Eleanor A., and Long, P. H.: Observations on Mode of Action of Sulfanilamide, J. A. M. A. **109**: 1524-1528 (Nov. 6) 1937.

14. Long, P. H., and Bliss, Eleanor A.: Personal communication to the authors.

15. Spray, R. S.: Bacteriostatic Action of Prontosil Soluble, Sulfanilamide and Disulfanilamide on Sporulating Anaerobes Commonly Associated with Gaseous Gangrene, J. Lab. & Clin. Med. **23**: 609-614 (March) 1938.

The data supplied in the table indicate that sulfanilamide exerts a definite inhibiting reaction on the growth of Cl. welchii and, moreover, that this bacteriostatic action is inversely proportional to the number of organisms used as the inoculum. That a bactericidal effect was not obtained, however, is readily shown by the fact that in those instances in which growth did not take place in the mediums containing sulfanilamide, definite growth resulted if a portion of this was transferred after forty hours to sulfanilamide-free mediums.

The growth obtained was ordinarily diffuse, but in the higher sulfanilamide concentrations a flocculent precipitate was obtained at the bottom of the tube with a clear supernatant broth, not unlike the condition sometimes observed when certain organisms are grown in dilutions of their homologous serum.

It seems reasonable to suppose, with the data supplied, that Spray's failure to obtain satisfactory results with sulfanilamide was due to the heavy inoculation of Cl. welchii used in his experiments.

SUMMARY AND CONCLUSIONS

1. In two cases of postabortal Cl. welchii infection with positive blood cultures the blood stream was rapidly sterilized by the use of sulfanilamide and the patient recovered.

2. Experiments demonstrated the bacteriostatic action of sulfanilamide on Cl. welchii in vitro. Such action is inversely proportional to the number of organisms used as the inoculum.

THE PROLONGED USE OF PROTAMINE ZINC INSULIN

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The immediate results of the use of protamine zinc insulin in diabetes have been frequently discussed. The effect of the prolonged use of protamine zinc insulin has not been so carefully considered. Ralli and her co-workers [1] gave a discouraging account of their experience with twenty patients at Bellevue Hospital. Graham [2] believes that protamine zinc insulin "will be the most popular method and will prove to be the best for the easy cases," though he cautions against premature enthusiasm until more experience has been obtained with it. McCullagh [3] found that sixty cases of diabetes responded exceedingly well to the prolonged use of protamine zinc insulin; Priscilla White [4] reported remarkable success in children: "95.0 per cent (574 patients) were known to be taking either protamine zinc insulin alone or in combination with regular insulin." Boyd and Jackson [5] obtained indifferent results in children, which they explained by the more rigid standards, especially in regard to the blood sugar, that they insisted on for their patients; Rabinovitz [6] lends a refreshing note to the situation in a plain statement: "We have very little trouble in using protamine insulin and believe it to be of great advantage. . . . We have had a few cases in which it was necessary to revert entirely to regular insulin." It becomes apparent that the opinions pro and con about the value of protamine zinc insulin are not unanimous, and this has prompted us to analyze the causes for success or failure in our cases.

The status of diabetic patients after six months or more of treatment with protamine zinc insulin is presented; when protamine insulin had been used some time previously this period is included in stating the duration of treatment with protamine zinc insulin. A comparison of the disease between the period when regular insulin was used and when protamine zinc insulin was used is given when the data are available.

CLINICAL MATERIAL

The clinical material was derived from three sources: (1) private patients controlled almost entirely by office visits (designated as office cases); (2) ambulant patients treated in the outpatient department of the New York Post-Graduate Hospital (designated as dispensary cases); (3) hospitalized patients at Sea View Hospital, a large institution devoted to the treatment of tuberculosis (designated as hospital cases). This material represents a cross section of the well-to-do, persons with moderate incomes and the indigent. The indigent patients were treated at Sea View Hospital and, consequently, were not in their natural environment and therefore cannot be regarded as comparable to the cases reported by Ralli and her associates.[1] About two thirds of these patients (office and dispensary cases) were ambulant and treated only at intervals, while about one third of them were hospitalized and had closer supervision (tuberculous cases at Sea View Hospital). In our experience, the presence of a complicating tuberculosis affected the clinical picture of the diabetes but little or not at all unless the patients had considerable or prolonged fever or were moribund; data on such persons are not included; there was a total of 114 cases, made up of forty-five hospitalized cases, forty-one office cases and twenty-eight dispensary cases.

STANDARD OF CONTROL IN DIABETES

The criteria by which the success or failure of the treatment of diabetes may be evaluated should be mentioned so that it is clearly understood what standards are used in this presentation to judge of the adequacy of protamine zinc insulin. The aims of treatment vary from time to time according to prevailing theories and to the development of new facts, so that any exposition of this sort is necessarily controversial and portrays only transient truths.

The yardsticks by which the control of diabetes is judged are the level of the blood sugar and the presence or absence of sugar in the urine.

Some clinicians and students of the subject believe that the blood sugar must be maintained at physiologic levels for the utmost results,[7] while others [8] consider that

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1. Ralli, Elaine P.; Fein, H. D., and Lovelock, F. J.: Observations on the Continued Use of Protamine Zinc Insulin in Patients with Severe Diabetes Mellitus, Am. J. M. Sc. **196:** 28 (July) 1938.
2. Graham, George: Diabetes Mellitus: A Survey of Changes in Treatment During the Last Fifteen Years: The Lettsonian Lectures, Lancet **2:** 121 (July 16) 1938.
3. McCullagh, E. P.: Protamine Zinc Insulin in Diabetes, Ann. Int. Med. **11:** 1979 (May) 1938.
4. White, Priscilla: Protamine Insulin in the Treatment of Juvenile Diabetes, South. M. J. **31:** 15 (Jan.) 1938.
5. Boyd, J. D., and Jackson, R. L.: Levels of Control in the Treatment of Diabetes Mellitus, J. A. M. A. **111:** 906 (Sept. 3) 1938.
6. Rabinovitz, Bernard, in discussion, New England J. Med. **219:** 556 (Oct. 13) 1938.
7. Allen, F. M., in discussion on Symposium on the Significance of Blood Sugar, Bull. New York Acad. Med. **12:** 309 (May) 1936. Boyd and Jackson.[5]
8. Bayne-Jones, Stanhope: The Effects of Carbohydrates on Bacterial Growth and Development of Infection, Bull. New York Acad. Med. **12:** 278 (May) 1936. Himwich, H. E.: Blood Sugar in Experimental Diabetes, ibid. **12:** 284 (May) 1936. Tolstoi, Edward: Blood Sugar in Diabetes Mellitus, ibid. **12:** 295 (May) 1936. Mosenthal, H. O.: Hyperglycemia: Evaluation in Treatment of Diabetes Mellitus, J. A. M. A. **105:** 484 (Aug. 17) 1935.

hyperglycemia without glycosuria is not only harmless but may be of benefit in diabetes, especially in elderly persons.

The occurrence of occasional moderate glycosuria is usually considered harmless to the patient and very often unavoidable. John [9] regards 10 Gm. of sugar in the urine in twenty-four hours as the upper desirable limit. The situation is satisfactorily summarized by Gray: [10] "Children seem to grow at a normal rate, pass successfully through accidents and illnesses, avoid the classic complications of diabetes and lead happy and useful lives in spite of never being exactly sugar free." It is our belief that glycosuria should be avoided but that sugar in the urine on occasion does no harm and is preferable to hypoglycemic reactions, though we do not endorse the idea recently expressed in an editorial [11] that huge quantities of sugar in the urine over periods of years do not cause damage. Himwich [8] has carefully analyzed the reasons why such practice is indefensible.

TABLE 1.—*Summary of the Results of Treatment with Protamine Zinc Insulin or Protamine Zinc Combined with Regular Insulin for Six Months or Longer*

	Cases	Per Cent
Total cases	114	
Good results	101	88.6
Poor results	9	7.9
Discontinued	4	3.5

With these facts in mind we have designated as good results with protamine zinc insulin those cases in which as a rule glycosuria of less than 1 per cent was exhibited in no more than one urinary specimen a day, as poor those in which the glycosuria was more marked, and as discontinued those cases in which because of excessive glycosuria or severe hypoglycemic reactions regular insulin was substituted for protamine zinc insulin. In nearly every instance the glycosoria was under as good or better control with protamine zinc insulin alone or in combination with regular insulin than with regular insulin alone; this experience coincides with the observations of McCullagh.[3] Most of the failures with protamine zinc insulin were due to hypoglycemic reactions after exercise.

Coma or severe acidosis scarcely ever occurred while a patient was treated with protamine zinc insulin and seemed even less of a threat than with injections of regular insulin; this has been the experience at the New England Deaconess Hospital.[12] Ralli,[1] on the other hand, records the frequent incidence of coma in diabetic patients regulated with protamine zinc insulin.

RESULTS OF TREATMENT WITH PROTAMINE ZINC INSULIN

The summary of the results of the treatment of diabetes with protamine zinc insulin for this series of cases is given in table 1. It is satisfactory.

The failures that have been recorded in some clinics can be explained by two principal reasons: first, the impossibility of maintaining the blood sugar within physiologic limits for the twenty-four hour period, especially in severe cases, by means of protamine zinc insulin alone; second, the unwillingness of many physicians to resort to regular insulin in conjunction with protamine zinc insulin when the combined use of a long and a short acting insulin is indicated.

As previously mentioned, we have not regarded hyperglycemia as a sign of failure of the effect of protamine zinc insulin, nor did we believe that all the benefits of fewer injections and freedom from hurrying for meals after the administration of insulin were completely lost when regular insulin was required with protamine zinc insulin. Our results with these provisos have been favorable but no more so than those of the clinicians who conceived the problems in the same way.

UPPER LIMITS OF DOSAGE WITH PROTAMINE ZINC INSULIN

Nearly all the more severely ill patients requiring a high dosage of insulin were receiving protamine zinc insulin combined with regular insulin and not protamine zinc insulin alone. This occurred because the first attempt was made to control the diabetes with protamine zinc insulin alone, and if this did not succeed regular insulin was added.

We believe that usually 40, at the most 50, units is the maximal satisfactory amount of protamine zinc insulin; when sugar in the urine persists, an increased dosage of protamine zinc insulin often fails to relieve the glycosuria occurring during the daytime and is very prone to cause severe hypoglycemic reactions in the early morning hours toward the close of the nocturnal fasting period. The hospitalized patients were in many instances managed by higher doses of protamine zinc insulin than the ambulant patients, since the resident physician desired to effect control of the diabetes with only one injection of insulin. He succeeded in this, as shown by the large proportion of hospital patients receiving protamine zinc insulin only (table 2), but severe reactions were much more frequent.

TABLE 2.—*Results of Treatment with Protamine Zinc Insulin or Protamine Zinc Insulin Combined with Regular Insulin for Six Months or Longer* *

Insulin, Total Units per Day	Hospital Cases				Office Cases				Dispensary Cases			
		Results				Results				Results		
	No. of Cases	Good	Poor	Discontinued	No. of Cases	Good	Poor	Discontinued	No. of Cases	Good	Poor	Discontinued
Diabetes Treated with Protamine Zinc Insulin Only												
20 or less...	5	5	0	0	6	6	0	0	13	13	0	0
21 to 40.....	19	18	0	1	14	14	0	0	7	6	0	1
41 to 60.....	8	8	0	0	1	1	0	0	2	1	0	1
Over 60.....	3	2	1	0	1	1	0	0	0	0	0	0
Totals...	35	33	1	1	22	22	0	0	22	20	0	2
Diabetes Treated with Protamine Zinc in Combination with Regular Insulin												
40 or less...	0	0	0	0	5	4	1	0	1	1	0	0
41 to 60.....	3	2	1	0	9	7	2	0	5	4	1	0
61 to 80.....	3	2	1	0	2	2	0	0				
Over 80.....	4	2	1	1	3	2	1	0				
Totals...	10	6	3	1	19	15	4	0	6	5	1	0

* The best control of the glycosuria and the least tendency to hypoglycemic episodes was as a rule achieved if the protamine zinc insulin was not pushed much beyond 40 units and was supplemented by injections of regular insulin when more insulin was required. The hospital patients with the large doses of protamine zinc insulin were more frequently afflicted with severe "insulin shocks" than the patients treated with smaller doses of protamine zinc insulin.

The best control of the glycosuria and the least tendency to hypoglycemic episodes, as a rule, was

9. John, H. J.: The Treatment of Diabetes: Use of Protamine and Crystalline Insulin, New York State J. Med. **38**: 1266 (Oct. 1) 1938.
10. Gray, P. A., Jr., in discussion on Boyd and Jackson,[5] J. A. M. A. **111**: 909 (Sept. 3) 1938.
11. Protamine Insulin and Diet in Diabetes Mellitus, editorial, Ann. Int. Med. **11**: 2048 (May) 1938.
12. Joslin, E. P.; Root, H. F.; White, Priscilla; Marble, Alexander, and Joslin, A. P.: Protamine (Zinc) Insulin, M. Clin. North America **22**: 711 (May) 1938.

achieved if the protamine zinc insulin was not pushed much beyond 40 units and was supplemented by injections of regular insulin when more insulin was required.

In some instances large amounts of protamine zinc insulin have been used successfully. We have been informed of one case in which a daily injection of 160 units of protamine zinc insulin was given without untoward symptoms. However, in our experience, especially in the ambulant cases, it has been much more difficult to stabilize the diabetes with a high dosage of protamine zinc insulin than when regular insulin was combined with a moderate dosage of protamine zinc insulin.

TABLE 3.—*Number of Injections a Day Required with Protamine Zinc Insulin in 114 Cases of Diabetes After Six Months or More on Protamine Zinc Insulin* *

		No. of Cases	Per Cent
Total cases		114	
1 injection	Protamine zinc insulin only 76	84	66.7 } 73.7
	Protamine zinc and regular insulin 8		7.0
2 injections	Protamine zinc insulin only 3	25	2.6 } 21.9
	Protamine zinc and regular insulin 22		19.3
3 injections	Protamine zinc insulin only 0	5	0 } 4.4
	Protamine zinc and regular insulin 5		4.4
4 injections		0	0

* The comparatively small number of injections is obvious; it is especially noteworthy that 66.7 per cent of the cases were controlled by one injection of protamine zinc insulin and that in 76.3 per cent no meal except breakfast had to be taken on schedule to compensate for rapidly induced hypoglycemia which occurs after regular insulin.

NUMBER AND TIME OF INJECTIONS OF PROTAMINE ZINC INSULIN

When injections of insulin become mandatory for the satisfactory control of diabetes it is universally agreed that the ideal procedure is to carry on with one dose of protamine zinc insulin administered before breakfast. In our series this was accomplished in seventy-six diabetic patients, that is in 66.7 per cent of the patients who had been treated with protamine zinc insulin for six months or longer (table 3). John [9] reports 99 per cent success in reducing the dosage to once a day, a truly remarkable achievement.

The use of protamine zinc insulin every other day has been sufficient for the satisfactory control of some diabetic patients. Dr. Anna Spiegelman at the New York Post-Graduate Metabolism Clinic first called our attention to this possibility; McCullagh [3] reports successful results with the injection of protamine zinc insulin at intervals of two days.

The question has been raised as to whether better results cannot be obtained by administering the protamine zinc insulin at some other time than before breakfast. It is obvious that an injection given on arising as part of the day's routine of dressing, bathing and the like is less disturbing to the patient than hypodermics at other hours when they necessitate retiring and partial disrobing. Since protamine zinc insulin acts for more than twenty-four hours, the time of injection would seem to be immaterial; however, it may be that the effect of the protamine zinc insulin is not constant and that this insulin may accelerate the dextrose metabolism more for the first eighteen hours than it will subsequently.

Some physicians believe that the administration of protamine zinc insulin in the evening produces better results than when given in the morning. Neuhoff and Rabinovitch [13] reported one case which was controlled satisfactorily with an injection at 7 p. m. when the morning regulation failed. Observations carried out with blood sugar control over the twenty-four hour period in our experience gave no evidence of any advantage in altering the time of giving protamine zinc insulin. Neuhoff and Rabinovitch [13] found the lowest blood sugar values between 3 a. m. and 7 a. m. regardless of whether protamine zinc insulin was administered at 7 a. m., 7 p. m. or 10 p. m. We have concluded that in most diabetic cases it makes no difference at what time of day the protamine zinc insulin is employed and that using it before breakfast is the most acceptable for the patient, though there may be occasional instances in which injections in the evening are more effective. It would appear to be a matter for trial, when necessary, to determine what can be accomplished by varying the time of administering protamine zinc insulin.

There are three diabetic patients in this series who received two injections of protamine zinc insulin a day (table 3). This was done early in the experience with protamine zinc insulin, when larger doses than 50 units were often administered because it was thought that half the daily dose could be advantageously omitted in the event of a hypoglycemic reaction. A few patients did well on such a regimen and consequently the method of treatment has not been changed. Neuhoff and Rabinovitch [13] found that splitting the dose of protamine zinc insulin in two did not control the blood sugar any better than one dose—in fact not so well in the difficult cases. It is also our final impression that the administration of multiple daily injections of protamine zinc insulin has no advantages over the single dose procedure.

FEWER INJECTIONS WITH PROTAMINE ZINC THAN WITH REGULAR INSULIN

A comparison of the number of daily injections of insulin in diabetes when treated by regular insulin alone and when regulated by protamine zinc insulin alone or in combination with regular insulin showed that distinctly fewer injections were required with protamine zinc than with regular insulin. (When protamine zinc and regular insulin were both administered in the morning this is credited as one injection, though the needle is used twice.) In only five of the 114 cases in this series were as many as three injections required, and in none of them were four injections necessary (table 3). In table 4 it is shown that in seventy-six cases of diabetes in which two or more injections of regular

TABLE 4.—*Fewer Injections with Protamine Zinc Insulin Than with Regular Insulin* *

Preceding Regular Insulin Number of		Subsequent Treatment with Protamine Zinc Insulin Number of Injections			
Cases	Injections	Unchanged	1 Less	2 Less	3 Less
21	2	3	18	..	..
42	3	1	13	28	..
13	4	..	1	8	4

* Seventy-six diabetic patients who had received two or more injections of regular insulin after six months or longer under treatment with protamine zinc insulin; the same number of injections were required in four cases, one less in thirty-two cases, two less in thirty-six cases and three less in four cases, making a daily saving of 116 injections for the seventy-six patients. (In this series when protamine zinc insulin and regular insulin were administered at the same sitting it is charted as one injection, although the needle was used twice.)

13. Neuhoff, Fritz, and Rabinovitch, Sam: Protamine Zinc Insulin: Clinical Observations and Comparative Analysis of Blood Sugar Curves Obtained with Use of Protamine Zinc Insulin and with Regular Insulin, Arch. Int. Med. **62**: 447 (Sept.) 1938.

insulin were given and which had been followed by six months or longer of treatment with protamine zinc insulin, the same number of injections were required in four cases, one less in thirty-two cases, two less in thirty-six cases and three less in four cases, making a daily saving of 116 sessions with the hypodermic needle for seventy-six diabetic patients. The decrease in the number of injections is very real, according to this analysis, and the advantages for the patient are twofold, not only because of the less frequent hypodermics but also for the reason that the meals after protamine zinc insulin need not be taken on a time schedule. Thus the diabetic patient's whole day becomes less hurried and tense.

COMPARATIVE REQUIREMENT OF PROTAMINE ZINC AND REGULAR INSULIN

The comparative requirement of protamine zinc and of regular insulin has been frequently reported; the usual statement is that fewer units of protamine zinc than of regular insulin are necessary for the control of any given case of diabetes. (The most important point at issue is whether protamine zinc insulin can regulate diabetes as effectively as regular insulin and with less exacting routine demands than regular insulin; the comparative dosage of protamine zinc and of regular insulin might well be considered a minor matter.) In our experience (table 5) there was a distinct difference between the hospitalized and the ambulant patients. Diabetic patients who were constantly under hospital supervision required less protamine zinc than regular insulin; while the office and dispensary patients called for a slightly greater amount of protamine zinc than regular insulin.

TABLE 5.—*Average Increase or Decrease in Units of Insulin a Day with Protamine Zinc Insulin (or Protamine Zinc and Regular Insulin) Compared to Insulin Dosage in Preceding Period with Regular Insulin Only* *

Dosage of Protamine Zinc Insulin or Protamine Zinc and Regular Insulin	Difference in Dosage Between Regular Insulin and Protamine Zinc Insulin Treatment†		
	Hospital Cases	Office Cases	Dispensary Cases
Less than 20 units...	—27 (4 cases)	+ 2 (3 cases)	— 3 (6 cases)
20 to 40 units.....	—15 (13 cases)	+ 1 (16 cases)	+ 7 (6 cases)
40 to 60 units.....	—25 (9 cases)	+ 7 (9 cases)	+ 2 (5 cases)
Over 60 units.....	—16 (6 cases)	+17 (5 cases)	+25 (1 case)
Average change.....	—19 (32 cases)	+ 4 (33 cases)	+ 3 (18 cases)

* There are fewer cases analyzed in this table than in the complete series because some patients had no initial period of regular insulin.

† The hospital patients received less protamine zinc than regular insulin, while the ambulant patients were controlled with slightly more protamine zinc than regular insulin. This difference in the requirement of protamine zinc and regular insulin between the two types of cases is probably more apparent than real and is attributed to a large dose method of administering regular insulin in the hospital patients and a more economical method of employing regular insulin in the ambulant patients.

The reason for this difference in the two groups is not clear, though one explanation suggests itself. In the ambulant cases, during the period of management with regular insulin, the insulin was administered by what might be termed the economical method; that is, by relatively small but frequent injections. Hence the total daily dosage in units was relatively low, and when these diabetic patients were switched to protamine zinc insulin the comparative requirement was greater than would have obtained if regular insulin had been administered in larger amounts and fewer injections. On the other hand, in the hospital group an effort was made to regulate the diabetic patients with either two or three injections of regular insulin a day so that the total daily amount of insulin was greater than if more frequent injections with a lower total number of units had been used.

The difference in dosage required between regular and protamine zinc insulin might therefore be regarded as one that depends very largely on the methods of administration that have been employed in the preceding period with regular insulin; some systems of regulation of the diabetes with regular insulin call for more insulin than others. We repeat that it seems to us a rather minor consideration whether more or less insulin is used and that freedom from restriction and avoidance of confining schedules should be used as the criteria for the acceptability of protamine zinc or regular insulin for any patient.

THE USE OF REGULAR INSULIN IN CONJUNCTION WITH PROTAMINE ZINC INSULIN

Some authors consider management of diabetes with protamine zinc insulin a failure when it has to be supplemented by injections of regular insulin. Many of our cases (thirty-five of 114, table 6) required regular insulin in addition to protamine zinc insulin for successful control. We believe this to be a distinct advance over the use of regular insulin only since the number of injections is materially reduced, hyperglycemia at night is prevented and there are a greater number of meals that need not be timed to follow closely on insulin injections.

The greater number of diabetic patients in the present series who received regular insulin in addition to protamine zinc insulin were in the high dosage brackets (table 7). This would be expected according to our system of dispensing protamine zinc insulin which limits the dose of protamine zinc insulin to 40, at the most 50, units and adds regular insulin when more insulin is required for the control of the diabetes. The detailed description of administering regular insulin in conjunction with protamine zinc insulin will be found in a subsequent section devoted to the regulation of dosage of protamine zinc insulin and protamine zinc combined with regular insulin.

DISADVANTAGES OF PROTAMINE ZINC INSULIN

The ideal effect of protamine zinc insulin is obtained when one dose of this insulin is given in the morning before breakfast and no further insulin is required during the day, and freedom from eating meals on time is achieved. This was accomplished in seventy-six, or 66.7 per cent, of our cases (table 3). Some observers, as previously mentioned, have achieved a greater degree of success, and some have not been as fortunate.

The lack of blood sugar control throughout the entire twenty-four hour period, the occurrence of slight or moderate glycosuria and the supplementary use of regular insulin have all been advanced as reasons for regarding protamine zinc insulin as a failure in diabetic management. We have not considered these conditions as indications for the discontinuance of protamine zinc insulin. We believe that the glycosuria, as a rule, is better controlled with protamine zinc insulin alone or in conjunction with regular insulin than with regular insulin alone. It must be remembered that there are many diabetic patients who do not respond well to either protamine zinc or to regular insulin. With such liberal criteria we have to record only four failures, or a 3.5 per cent failure in our series of 114 cases in which protamine zinc insulin was given for six months or longer (table 1).

The incidence of acidosis and coma was less frequent under a regimen of protamine zinc insulin than under regular insulin. With either insulin the development of a severe acidosis was not a common occurrence. The production of acidosis and coma may therefore, in our experience, be eliminated as an argument against the employment of protamine zinc insulin.

Hypoglycemia has been regarded as one of the serious drawbacks to the use of protamine zinc insulin.[14] An editorial in THE JOURNAL called attention to the dangers of hypoglycemic reactions with a protamine zinc insulin

TABLE 6.—*Number of Diabetic Patients Receiving Protamine Zinc Insulin Only and Those Cases Requiring Regular Insulin in Addition to Protamine Zinc Insulin After Six Months or More of Protamine Zinc Insulin Therapy*

	No. of Cases	Per Cent
Total cases	114	
Cases treated with protamine zinc insulin only	79	69.3
Cases treated with protamine zinc and regular insulin	35	30.7

regimen which may be severe, even fatal, and appear without warning or follow exercise. Wilder some time ago quoted one of his patients who was using protamine insulin as saying that he no longer suffered from diabetes but now had insulin reactions. In the early days of using protamine zinc insulin reactions were plentiful; however, since we have learned to moderate the dose of both protamine zinc and regular insulin according to the scheme previously detailed, they have occurred less and less frequently and their intensity has been very much diminished.

The importance of exercise in causing hypoglycemia in patients under the influence of protamine zinc insulin has come to be realized. Physical exertion, sometimes even of moderate intensity, may result in devastating reactions. In one of our cases a walk of a quarter of a mile would result in unconsciousness from which the patient was rescued on three occasions by infusions of dextrose and then protamine zinc insulin therapy was abandoned. We have never encountered another case like this one, though the possibility of a similar susceptibility must always be remembered. In many diabetic patients, hard walking or golf results in hypoglycemic emergencies. We have for the last year advised diabetic patients to indulge in a considerable amount of carbohydrate-containing food, such as a sandwich and a glass of milk, before playing golf and the like so as to anticipate the combined effect of protamine zinc insulin and exercise on the blood sugar. This has been most successful. In a few cases of diabetes, when a combination of hard exercise and sunshine has been taken up during the summer, we have thought it advisable to discontinue the protamine zinc insulin and resort to regular insulin, because marked hypoglycemia and swimming did not seem compatible with safety; for the same reason an ardent aviatrix was asked to refrain from protamine zinc insulin and not to fly until five hours had elapsed after an injection of regular insulin.

In short, we believe that, by limiting the dosage of protamine zinc insulin to 40 units, as a rule, and supplementing this with carefully meted out regular insulin, when necessary, and by buffering the hypoglycemic tendency of exercise before the physical exertion is indulged in, hypoglycemic reactions may be controlled and are no more frequent—if not less so—than they are with regular insulin.

14. Danger of Protamine Insulins, editorial, J. A. M. A. **111**: 254 (July 16) 1938.

REGULATION OF DOSAGE OF PROTAMINE ZINC INSULIN ALONE AND COMBINED WITH REGULAR INSULIN

Mild diabetes is usually controlled without difficulty by one injection of 20 units or less of protamine zinc insulin; the urine is continually free of sugar and the blood sugar maintains acceptable levels throughout the twenty-four hours. When the required dose ranges between 20 and 40 units of protamine zinc insulin, as a rule a late evening meal containing starch and protein becomes necessary to prevent the excessive lowering of the blood sugar during the night, which larger amounts of protamine zinc insulin bring about. In severe diabetes calling for more than from 40 to 50 units of protamine zinc insulin, the blood sugar is usually at a normal level throughout the night; but during the day, after eating, hyperglycemia and glycosuria often develop. A further increase of protamine zinc insulin might control the diurnal glycosuria but would be prone to overact during the fasting period at night and cause early morning hypoglycemic reactions, which are always disagreeable and may be serious. Forcing protamine zinc insulin under these circumstances will result in a miscarriage of the diabetes treatment and make this drug score a failure. In this dilemma the remedy lies in administering just enough protamine zinc insulin to control the blood sugar during the period of nocturnal fasting and to supplement it with short acting regular insulin to check the postprandial hyperglycemia and glycosuria.

The signs and symptoms, according to which the regulation of diabetes by protamine zinc insulin alone or combined with regular insulin is accomplished, are decidedly different from the data that guided treatment when regular insulin was the sole insulin available. In some clinics a blood sugar curve covering the entire twenty-four hours is claimed to be necessary for evaluation of the effect of protamine zinc insulin. This is obviously impracticable in routine hospital, office or dispensary practice. The history and laboratory determinations at each visit should furnish information concerning two points:

1. What is the level of blood sugar between 3 a. m. and 6 a. m.?
2. Is there a postprandial glycosuria and after which meals does it occur?

There are numerous ways in which this information may be obtained. One objection, which it seems to us should not be lost sight of, is that it is very essential that a visit to the doctor should not necessitate an upheaval in the patient's daily routine from which it may be difficult to regain a balance; consequently, we

TABLE 7.—*Number of Patients Receiving Protamine Zinc Insulin Only and Those Receiving Regular Insulin as Well, at Various Dosage Levels*

	All Patients		Protamine Zinc Insulin Only		Protamine Zinc and Regular Insulin	
Dosage in Units	Number	Per Cent	Number	Per Cent	Number	Per Cent
Total cases	114	....	79	....	35	....
40 units or less	70	61.4	64	81.0	6	17.1
41 to 60 units	28	24.6	11	13.9	17	48.6
Over 60 units	16	14.0	4	5.1	12	34.3

have not carried out blood sugar determinations in the fasting state nor have we asked for a twenty-four hour specimen of urine. The following procedures have been gradually evolved and have proved to be serviceable:

1. For the estimation of the early morning sugar level:

A. Careful inquiries are made regarding symptoms of hypoglycemia occurring between 2 and 3 a. m. and breakfast time; besides the usual complaints, it should be noted that headache, whether slight or severe, on awakening may be the only subjective warning. If there are any indications whatever of hypoglycemia, this condition should be presumed to have been present until further investigation has disproved its existence. The evidence of, or even a suspicion of, hypoglycemia calls for a reduction in the dose of protamine zinc insulin.

B. Examination is made of the specimen of urine voided on arising; if this contains more than 0.1 per cent of sugar, the blood sugar during the night has probably been greater than normal and the dose of protamine zinc insulin may be increased; if this sample of urine shows no sugar, the blood sugar may be relatively normal or too low and the protamine zinc insulin should not be raised but may be lowered if there are evidences of hypoglycemia, obtained from the patient's symptoms or blood sugar determinations.

C. Determination of the blood sugar at about 6 a. m. is very desirable but hardly ever possible; this gives a direct estimation of the fasting glycemia; hypoglycemia calls for a lowering of protamine zinc insulin and hyperglycemia for an increase. When the blood sugar is estimated from one-half to three hours after breakfast, as is generally done in private practice, the interpretation becomes somewhat intricate. A low blood sugar shows that the protamine zinc insulin is overactive after breakfast and that it should be diminished. A high blood sugar may either indicate an insufficient amount of protamine zinc insulin and an elevated fasting blood sugar or it may point to an extremely low early morning blood sugar from which the hypoglycemia has undergone a rebound to hyperglycemia through the mobilization of dextrose from liver glycogen. (One diabetic patient who through error had quadrupled her injection of protamine zinc insulin for several days showed a total absence of true dextrose in the blood at 6 a. m. on two successive days, and after her usual breakfast, without the addition of sugar or other food, the blood sugar at 10 a. m. rose to a level of 200 mg. per hundred cubic centimeters.) The differential diagnosis in regard to the significance of the hyperglycemia under these circumstances rests entirely on the patient's account of the early morning conditions. As a rule the degree of hypoglycemia is so marked that there is no doubt about its existence when the rebound phenomena occur, so that an elevated blood sugar after breakfast may be regarded as a sign of deficient protamine zinc insulin unless the patient's evidence indicates that there was a hypoglycemia early in the morning, in which case the hyperglycemia points to an excessive dose of protamine zinc insulin. This paradox cannot be ignored if the successful regulation of diabetes by protamine zinc insulin is to be accomplished.

2. For the determination of postprandial glycosuria:

A. Besides the urine on arising, previously mentioned, the specimen obtained two hours or more after the evening meal should be examined. If this contains no sugar, regular insulin is contraindicated. If it contains sugar, two methods of procedure suggest themselves. In case the morning urine also yields dextrose and the early blood sugar is elevated, the protamine zinc insulin may be increased; when it is not desirable to administer a larger amount of protamine zinc insulin, or if either the morning urine or blood sugar or both are normal, while the evening specimen contains sugar, then regular insulin may be employed in addition to the protamine zinc insulin. According to cold reasoning, the regular insulin should be given just before the evening meal. In many instances, however, it may be administered effectively before breakfast, dispatching all the insulin injections for the day at one sitting and making it obligatory to take only breakfast on schedule, which is not very difficult. This method of treatment was reported as successful in eight of our cases (table 3). When the urine does not become sugar free by these means, the regular insulin should be given before supper only; if this is not completely effective, then regular insulin in conjunction with protamine zinc insulin is given both before breakfast and before supper. Treatment with regular insulin before all three meals is rarely required (five cases in our series, as shown in table 3).

A word of warning is necessary with regard to the size of the dose of regular insulin when it is given in combination with protamine zinc insulin. Regular insulin under these circumstances is much more potent than when it is the sole insulin. When it is given in addition to protamine zinc insulin, we have found it advisable to limit the initial dose of regular insulin to 4 or 6 units and raise by 2 unit increments to about 12 to 14 units once or twice a day, before breakfast, before dinner or both as the usual upper safe limit. There are occasional instances in which more insulin is well tolerated, such as one patient with hemochromatosis who is receiving approximately 50 units of protamine zinc insulin once a day, and 25 units of regular insulin twice a day. Occasional cases of this sort can be satisfactorily adjusted by persistent, judicious ventures in protamine zinc and regular insulin therapy.

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THE USE OF HEPARIN IN BLOOD TRANSFUSIONS

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Heparin as a natural anticoagulant has frequently been suggested for use in blood transfusions, but the difficulty in obtaining a pure and potent product free from toxic effects, as well as the high cost of production, has been a hindrance to its trial and use. Mason [1] in 1924 reported some experiments on thirty-three human subjects relative to the use of heparin in blood transfusions, but his product was too toxic for routine clinical purposes. Howell [2] in 1928 obtained a purified heparin which was tried out in transfusions on ten patients, apparently with good results, though subsequent reports of its use are wanting. In 1933 Schmitz and Fischer [3] in Copenhagen and Charles and Scott [4] in Toronto obtained heparin in a pure state. Jorpes [5] showed that this pure heparin is a mucoitin polysulfuric ester. It is now being produced commercially and stable, potent preparations, apparently nontoxic, are now or soon will be available at a cost less prohibitive than formerly.

These new heparins have already been used as the anticoagulant in blood transfusions and the results have been reported by Skold,[6] Tretow,[7] Schürch [8] and Clemens.[9] These investigators employed the in vitro

From the Clinical Laboratories, Hahnemann Hospital.

1. Mason, E. C.: A Note on the Use of Heparin in Blood Transfusion, J. Lab. & Clin. Med. **10:** 203-206 (Dec.) 1924.
2. Howell, W. H.: The Purification of Heparin and Its Chemical and Physiological Reactions, Bull. Johns Hopkins Hosp. **42:** 199-206 (April) 1928.
3. Schmitz, Adolf, and Fischer, Albert: Ueber die chemische Natur des Heparins: II. Die Reindarstellung des Heparins, Ztschr. f. physiol. Chem. **216:** 264-273 (May 3) 1933.
4. Charles, A. F., and Scott, D. A.: Studies in Heparin: I. The Preparation of Heparin, J. Biol. Chem. **102:** 425-429 (Oct.) 1933; II. Heparin in Various Tissues, ibid., pp. 431-435. Scott, D. A., and Charles, A. F.: III. The Purification of Heparin, ibid., pp. 437-448.
5. Jorpes, Erik: The Chemistry of Heparin, Biochem. J. **29:** 1817-1830 (Aug.) 1935.
6. Skold, Erik: Heparin bei Bluttransfusion, Acta med. Scandinav. **88:** 450-454, 1936.
7. Tretow, Wilhelm: Vorlaufige Mitteilung ueber eine neues Bluttransfusionmethode, Zentralbl. f. Chir. **64:** 2880-2882 (Dec. 18) 1937.
8. Schürch, O.: Zur Frage der Bluttransfusion mit Heparin, Zentralbl. f. Chir. **65:** 765-767 (April 2) 1938.
9. Clemens, J.: Ueber Heparin und seine Verwendung fur die indirekte Blutuebertragung, Zentralbl. f. Chir. **65:** 809-819 (April 9) 1938.

method as in sodium citrate transfusions, adding the requisite amount of heparin to the drawn blood. Their results seem to have been satisfactory, though it is of some significance that three of them mention using large needles or cannulas, and two of them used paraffin in the receiving flasks. Hedenius [10] followed a different procedure, an in vivo method, heparinizing the donor by giving intravenously a dose sufficient to render the entire volume of blood temporarily incoagulable, then at the appropriate time withdrawing the desired amount of blood and injecting it into the donor. This method has been tried in more than 150 blood transfusions and has been so successful that Hedenius states that in the Sabbatsberg and Serafimer hospitals in Stockholm it is used as a routine, having replaced the citrate and whole blood methods. Knoll and Schürch [11] also have reported on the successful use of the Hedenius method.

The investigations herewith reported concern the use of heparin by in vitro and in vivo methods in a series of blood transfusions. The heparin we employed is the same used by Hedenius and is a stable, sterile 5 per cent solution of the drug.[12] It contains 500 units per milligram, the unit of heparin being defined as that amount of substance which will prevent the clotting of 1 cc. of cat's blood for twenty-four hours when kept in the cold. The unit of heparin has a different meaning with different preparations but the high potency of this product is evident. The amount recommended to add to 500 cc. of drawn blood is 20 mg. (0.4 cc. of the 5 per cent solution); this maintains the fluidity of the blood for many hours. The dose for heparinizing the donor by intravenous injection (Hedenius method) is 1 mg. per kilogram of body weight; this is usually from 70 to 75 mg., or approximately 1.5 cc. of the 5 per cent solution. After such a dose, the blood shows within a few minutes marked lengthening of the coagulation time, and this persists for from thirty to sixty minutes or more, giving ample time for the withdrawal of this relatively incoagulable blood and its injection into the patient. Seven minutes after the injection of the donor, the withdrawal of his blood is begun and usually completed three or four minutes later. This heparinized blood will have no effect on the patient as far as altering the coagulation time. If, however, heparin is added to blood in vitro in certain amounts and given to the patient, the coagulation time may be altered. To effect this a certain threshold dose must be exceeded, which is 0.25 mg. per kilogram of body weight. Apparently only the coagulability of the blood is affected, as up to 4 mg. per kilogram has been given to man without toxic effects. And in rabbits it has proved nontoxic up to 100 mg. or more per kilogram when injected intravenously.

TECHNIC

The sodium citrate method is easily the dominant method of blood transfusion, and a new procedure must face comparison with it. About 1,200 citrate transfusions are done at the Hahnemann Hospital in a year, and the method is so standardized that there are few or no technical difficulties. For the purpose of comparison, our heparin transfusions were done as far as possible with the same technic. This, in brief, consists in collecting the blood in two 250 cc. cylinders, citrating it at the same time by adding the appropriate amount (0.3 per cent) of 10 per cent sodium citrate as each 50 cc. of blood is collected, after which the blood is given the patient by the gravity method, an 18 gage needle, long rubber tubing and a 250 cc. buret being used. It takes three or four minutes to collect 500 cc. of blood and from ten to twelve minutes to give it. The heparin transfusions were done in the same way, the same apparatus and the same procedure being used in the case of blood heparinized after withdrawal, and such modifications being instituted as were essential when the donor was heparinized before the blood was withdrawn. Forty heparin transfusions were done, seventeen by the in vitro and twenty-three by the in vivo method. All were purposely of 500 cc. We used this larger amount because almost any method of transfusion may be successful with small amounts such as from 250 to 300 cc. but not infrequently works poorly with amounts of 500 or 600 cc. of blood.

TRANSFUSIONS WITH BLOOD HEPARINIZED AFTER WITHDRAWAL

The blood for these seventeen transfusions was collected as already indicated for the citrate method and heparin, diluted in saline solution, added fractionally to each 50 cc. of blood. The total amount of heparin added to each 500 cc. varied from 20 mg. (0.4 cc.) to 150 mg. (3 cc.) according to the nature of the experiment. A small portion of each specimen of heparinized blood, 5 or 10 cc., was poured into a test tube and retained to note the time of clotting. In no instance was there any clotting before three days, after which the specimen was usually discarded. In one case, in which only 25 mg. of heparin was added to the 500 cc., the blood was fluid at the end of nine days.

When to 500 cc. of donor's blood was added from 20 to 25 mg. of heparin, amounts which cause no change in the patient's coagulation time, and the transfusion given with an 18 gage needle, it was found that, though the first 250 to 300 cc. was transfused rapidly and without delay, the flow then began to slow and usually stopped when from 350 to 400 cc. of blood had been given. It was ascertained that this was due to clotting within the needle but not within the rubber tubing or buret. When a 17 gage needle was used the transfusions proceeded without interruption, though the flow slowed, often considerably, with the last 150 cc. When a 16 gage needle was used, the whole operation was accomplished with ease and rapidity. In two instances, bloods heparinized with 20 and 25 mg. were banked and transfused without difficulty after twenty-four and forty-eight hours respectively, with a 16 gage needle.

When the flow of blood stopped, say at from 350 to 400 cc., because of blockage within the 18 gage needle, the transfusion was completed successfully by making another venipuncture with a fresh needle. It was thought, however, that the entire transfusion might be accomplished with one puncture and a small needle if more heparin was added, and this was tried. Amounts of 40, 50, 75, 100 and even 150 mg. were added to the blood instead of the usual 20 or 25 mg. The complete transfusion of 500 cc. was then successful with an 18 gage needle, the success as measured by the ease and rapidity of the transfer being roughly proportionate to the amount of heparin added. In this connection, we in one instance added 75 mg. of heparin to 500 cc. of blood and banked it forty-eight hours, at the end of which time it was transfused without trouble with a small needle.

10. Hedenius, Per: A New Method of Blood Transfusion, Acta med. Scandinav. **89**: 263-267, 1936; Further Experience with Heparinizing the Donor in Blood Transfusions, Lancet **2**: 1186 (Nov. 20) 1937.
11. Knoll, H., and Schürch, O.: Blood Transfusion with Heparin, Lancet **1**: 1387-1389 (June 18) 1938.
12. This heparin is prepared after the method of Charles and Scott under the direction of Jorpes and is marketed by Firma Vitrum, Stockholm. Tretow and Clemens used a German preparation, Vetren, put out by Promonta of Hamburg; Schuerch, a Swiss product of Hoffmann-LaRoche Company of Basle.

The addition of such amounts of heparin exceeds the threshold dose of 0.25 mg. per kilogram of body weight, and a lengthening of the coagulation time was anticipated. In all instances the bloods showed a normal coagulation time before transfusion. When 50 mg. of heparin was added to the blood transfused, the patient's blood showed a clotting time of seventy-three

Table 1.—*Donor's Blood*

	Hemoglobin, Gm.		Red Count		White Count		Platelet Count	
Donor	Before Heparin	After 60 Min.	Before Heparin	After 60 Min.	Before Heparin	After 60 Min.	Before Heparin	After 60 Min.
1	17.4	17.4	5,170,000	5,060,000	8,500	7,200	620,000	486,000
2	17.0	17.0	5,030,000	5,000,000	7,200	7,600	472,000	452,000
3	17.4	17.4	5,170,000	5,100,000	7,500	6,000	599,000	420,000
4	17.4	17.4	5,120,000	5,000,000	9,500	12,500	563,000	440,000
5	15.0	14.3	4,680,000	4,600,000	10,500	8,300	550,000	514,000
6	16.0	16.0	4,970,000	4,950,000	6,700	5,700	526,000	480,000
7	17.0	15.8	5,250,000	5,010,000	9,500	8,900	567,000	335,000
8	16.7	15.3	5,090,000	4,960,000	10,000	8,800	559,000	468,000
9	15.7	14.8	5,020,000	4,690,000	10,200	7,000	502,000	451,000
10	13.0	11.3	4,810,000	4,710,000	7,000	9,800	423,000	384,000
11	14.8	13.0	4,590,000	4,320,000	7,800	7,600	489,000	399,000
12	13.7	13.4	4,360,000	4,300,000	4,300	5,200	408,000	325,000
13	16.0	15.7	5,170,000	5,060,000	5,900	5,000	568,000	485,000
14	14.6	13.9	4,990,000	4,580,000	9,400	10,600	568,000	499,000
15	14.3	13.9	4,410,000	4,560,000	9,900	11,900	406,000	317,000
16	17.4	17.0	5,380,000	5,300,000	8,800	10,900	408,000	322,000
17	14.0	14.0	4,310,000	4,300,000	9,700	11,100	499,000	405,000
18	13.9	13.7	4,620,000	4,230,000	5,300	6,200	462,000	328,000
19	15.8	15.7	5,260,000	5,200,000	5,300	5,200	510,000	462,000
20	14.1	13.7	4,650,000	4,600,000	5,000	5,900	604,000	558,000
21	14.4	13.9	5,020,000	4,620,000	4,500	5,900	480,000	462,000
22	14.3	15.0	4,890,000	4,830,000	8,400	9,400	480,000	420,000
23	16.4	15.0	5,220,000	4,890,000	6,100	9,900	428,000	375,000

minutes immediately after completion of the transfusion, of from fifty to sixty minutes a half hour later and a gradual drop to normal in an hour or two. With an addition of 100 mg. the patient's coagulation time immediately and thirty minutes after the transfusion was about two hours. With 150 mg. of heparin, the patient's blood removed fifteen and sixty minutes after the transfusion remained unclotted for sixteen hours. This lengthening of the clotting time might be an advantage or disadvantage to the patient: an advantage if the danger of thrombosis was present or expected; a disadvantage if the patient is in shock [13] or there is a hemorrhagic tendency. At any rate our patients suffered no ill effects whatever from the larger amounts.

TRANSFUSIONS WITH HEPARINIZED DONORS

With some exceptions the donor's dose of heparin was approximately 1 mg. per kilogram of body weight, or about 1.5 cc. of the 5 per cent solution injected intravenously. In table 1 are seen the results of the examination of the blood of donors before and after the injection of heparin and withdrawal of 500 cc. of blood. It will be noted that the hemoglobin and the red and white cell counts are almost the same or exhibit an insignificant reduction. Likewise the platelet count shows only a slight and unimportant drop. These counts are also a comment on the immediate effect of losing 500 cc. of blood. The bleeding time, while not tested specifically, was noted when the foregoing counts were made, and it was observed that while there was no increased bleeding with low doses there was a slight increase of bleeding time with large doses of heparin.

The effect on the donor's coagulation time is seen in table 2. All coagulation tests were done by the Lee and White method with blood taken from the vein of the uninjected arm. The end point by this method is later than by various other methods. It will be noted that the lengthening of the clotting time after heparin is prompt and striking but that there is considerable variation in the coagulation time in different donors even with the same dose of heparin. Part of these variations we cannot explain. Part is probably due to the fact that at the beginning of the work we injected the small amount of heparin rapidly and undiluted, whereas later we injected it more slowly and finally we injected it very slowly diluted with 5 or 10 cc. of saline solution, thus insuring better dispersion throughout the entire blood volume. In the later cases in which this method was in vogue and two minutes was taken for the injection, it will be seen that, while the coagulation was normal before injection, it changed in one minute so that the clotting time was increased to an hour or more and remained lengthened from thirty to sixty minutes. It was difficult to keep donors in the laboratory after an hour, so in many instances there are no tests after this time. When larger doses of heparin were given, the prolongation of blood fluidity was still more marked. In donor 18, who received 4 mg. per kilogram, or 5 cc. of the heparin solution, the one, thirty and sixty minute bloods remained uncoagulated two days and the two hour blood one day. This donor returned to the laboratory in two days, when his blood clotted in sixteen minutes and he reported no ill effects. Donor 23 received 2 mg. per kilogram and his clotting was watched with special care. The blood that clotted in fifteen minutes before the injection of heparin did not clot for nine hours in the specimen taken one minute after the injection of heparin, as well as in ten, thirty and sixty minute specimens. The blood of the two and one-half hour specimen clotted in three hours and that taken in three and one-half hours clotted in ten minutes. In a case not included in the list but observed especially for the clotting phenomena, the donor received only 1 mg. per kilogram. His blood one minute after the injection of heparin coagulated in 170 minutes, after sixty minutes in 120 minutes and after

Table 2.—*Donor's Blood*

			Venous Coagulation Time				
Donor	Weight, Lb.	Heparin Dosage in Mg.	Before Heparin Injection	1 Min. After Injection	10 Min. After Injection	30 Min. After Injection	60 Min. After Injection
1	155	75	10 min.	.....	65 min.	11 min.	11 min.
2	137	75	12 min.	.....	75 min.	15 min.	13 min.
3	150	75	12 min.	.....	65 min.	30 min.	20 min.
4	150	75	14 min.	.....	85 min.	50 min.	50 min.
5	160	90	12 min.	.....	.....	45 min.	35 min.
6	167	75	12 min.	.....	70 min.	75 min.	44 min.
7	170	90	10 min.	.....	66 min.	40 min.	30 min.
8	150	75	10 min.	.....	95 min.	45 min.	22 min.
9	135	65	12 min.	.....	100 min.	50 min.	55 min.
10	126	65	10 min.	.....	90 min.	80 min.	60 min.
11	158	75	12 min.	.....	110 min.	75 min.	45 min.
12	135	65	16 min.	.....	75 min.	35 min.	37 min.
13	150	75	11 min.	.....	75 min.	90 min.	24 min.
14	125	70	13 min.	95 min.	90 min.	100 min.	70 min.
15	125	60	8 min.	90 min.	85 min.	60 min.	50 min.
16	167	75	15 min.	90 min.	85 min.	95 min.	27 min.
17	150	150	10 min.	120 min.	120 min.	90 min.	70 min.
18	145	250	9 min.	48 hrs.	3 days	47 hrs.	47 hrs.
19	168	80	23 min.	85 min.	75 min.	140 min.	100 min.
20	130	60	15 min.	70 min.	65 min.	150 min.	120 min.
21	125	60	16 min.	60 min.	80 min.	180 min.	135 min.
22	165	75	15 min.	60 min.	60 min.	25 min.	27 min.
23	150	140	15 min.	9 hrs.	9 hrs.	10 hrs.	9½ hrs.

120 minutes in sixty minutes. None of these donors had the slightest ill effect from small or large doses of the drug, which is a tribute to its nontoxicity.

The withdrawal of the donor's heparinized blood was begun seven or eight minutes after injection, and the patients were given the blood at once. The patients were tested for coagulation time before and sixty minutes after the transfusion and showed no change except when excessive doses of heparin had been given the donor, as in cases 17, 18 and 23. The results experi-

13. Murray, G. D. W., and Best, C. H.: The Use of Heparin in Thrombosis, Ann. Surg. **108**: 163-173 (Aug.) 1938.

enced in giving blood heparinized in vitro were duplicated when we transfused blood heparinized in vivo. When 18 gage needles were used, the blood flowed freely for the first 350 cc. and then slowed to stopping, requiring repuncturing with another 18 gage needle, after which the transfusion was completed without difficulty. Since blood clots slower in larger containers than in narrow cylinders, we attempted to avoid this by collecting the blood in a 500 cc. flask unparaffined in one instance and paraffined in another. Both experiments were unsuccessful, the blood clotting within the needle when from 420 to 450 cc. had been given. It seems evident that the difficulty is in the passage of the blood through the narrow channel of the small needle, the friction probably aiding thrombotic factors. We therefore relied mostly on a 16 gage needle, with which the transfusion was uniformly successful. Tretow, Schuerch and Clemens, without giving the size, mention using large needles or cannulas and probably experienced the same trouble. One objection to the large needle is the speed of the transfusion, the time in our cases being only from three to five minutes. The patients, however, suffered no circulatory or respiratory embarrassment even when the transfusion was given as rapidly as three minutes. We do not think it is desirable to give rapid intravenous injections of blood or any fluid, but our experience here shows that 500 cc. of blood may be transfused in from three to five minutes without objectionable effects.

SEQUELAE

Judging from the results of these forty transfusions, the heparin used was free from toxic effects. None of the twenty-three donors injected intravenously with the drug suffered the slightest ill effects immediately or later. Nor did the recipient patients show any early or late effects which could be attributed to the heparin. Two of the forty patients had a chill and a rise in temperature within an hour after the transfusion, but this incidence is no higher than with transfusions of blood treated with sodium citrate. In another case urticaria developed right after the transfusion, but a similar attack of hives had occurred after a transfusion with citrated blood a few days previously.

SUMMARY

A stable, potent, pure heparin was used as the anticoagulant in forty blood transfusions and appeared to be without toxic or other undesirable effects on donor or patient. It was used in two ways: first, in vitro to heparinize the drawn blood from the donor; second, in vivo to heparinize the donor by intravenous injection. The first corresponds to transfusion of citrated blood and differs from it only in the anticoagulant. The second method is simpler in that the heparinized blood is withdrawn from the donor and introduced into the patient without any treatment outside the body. Seventeen patients were given transfusions by the first method and twenty-three by the second, all with 500 cc., since a larger amount of blood was thought a better test of the procedure. These were all done by a gravity method paralleling the citrate technic in order that comparison of the two anticoagulants could better be made.

All forty transfusions were successful in that the entire amount of blood was transfused and the donors and patients suffered no ill effects. But it was found that for a successful, uninterrupted transfusion a larger needle was necessary for introduction into the patient than in the citrate method, in our experience a 16 gage needle as against the 18 gage commonly used in citrate transfusion. If a 500 cc. transfusion is desirable, this has a disadvantage in that the patient's veins may be difficult to enter with such a large needle. If a small transfusion is sufficient, up to 350 or even 400 cc. may be given without difficulty with an 18 gage needle. Or the operation of giving 500 cc. can be accomplished by giving as much blood as will flow through the small needle and then completing the transfusion by making another venipuncture with a fresh 18 gage needle. We did this a number of times and the two punctures caused little or no discomfort to the patient. This hindrance to the heparin transfusion is caused by clotting within the smaller needle, even though the same heparinized blood may be kept days without clotting. In one instance blood was banked twenty-four hours and in three instances forty-eight hours and then transfused successfully. Reactions are negligible, as they are now in transfusions with citrated blood. Whether the heparin method can displace the well established citrate method remains to be seen. It would seem to offer two advantages. The heparinization of the donor makes the procedure more simple and almost a one man job. The therapeutic value of heparin may be of advantage in postoperative transfusions.

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CRYPTORCHIDISM

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For the past two or three years the medical literature has been filled with numerous reports as to the effect of endocrine therapy on cryptorchidism. In the main the accounts of successes have been glowing indeed. The published data have been pounced on by all the drug firms which distribute endocrine products, and the desk of every physician in the land has been deluged with reprints and advertisements. The idea of endocrine therapy for undescended testis has been "sold" to the medical profession.

Every one has heard all about the results of this method of treatment and is familiar with the happy outcome. Therefore I shall not take time to quote the many statistics which have been presented. In general it will suffice to say that in the compiling of a group of published results 179 cases were found of successful treatment and seventy-four of unsuccessful treatment, or 62 per cent of good results and 38 per cent of failures.

Previous to this onslaught the surgeon treated cryptorchidism by surgical measures. Not long ago the various authorities advised operation at all ages from 3 to 11, the consensus narrowing the limits from 9 and 11 years. Yet all agreed that the testis should be placed in the scrotum before the onset of puberty.

With the surgical teaching as a basis and the endocrine ballyhoo thundering in my ears, it occurred to me that I was in a unique position to obtain a standard by which the value of the two methods could be compared and a definite base line drawn. The results of my study have led to an interesting group of figures, which may be of value in comparing future therapeutic results.

STATISTICAL STUDY

For the past seven years I have had charge of the physical examinations of the boys who have joined the Boys Club of New York at the Jefferson Park Build-

ing. These boys are from the group of underprivileged children who inhabit New York's upper east side. Financial aid for the project has been difficult to obtain, so that medical service by the organization has been limited to physical examinations. Boys with serious defects have been referred to the large city clinics for care. It has thus come about that, while many defects have been noted, only the serious ones have been treated.

Boys of all ages from 7 to 17 have been examined year after year. Consequently there has been formed a group of boys in whom undescended testes were found, who were given no therapy and for whom follow-up examinations were done.

The study comprises a group of 544 cases of undescended testes observed from 1931 to 1937 inclusive. These cases were found during the examination of 31,609 boys, an incidence of 1.72 per cent, approximately seventeen cases per thousand boys.

After the World War, United States Army statistics showed that there were approximately two cases of undescended testes per thousand recruits examined. If there is no such thing as spontaneous descent, as has been declared by some writers, what happened to the fifteen cases per thousand? Surely this discrepancy in figures is not the result of surgical procedures.

In the 544 cases of undescended testes, careful examination revealed bilateral undescended testes plus Fröhlich's syndrome in seventeen cases and unilateral undescended testis plus Fröhlich's syndrome in eleven cases, or a total of twenty-eight cases of associated Frölich's syndrome. Undescended testis was associated with hernia in thirteen cases, malnutrition in five, hypospadias in two and congenital heart disease in two.

Fröhlich's syndrome has been seen often during these examinations, but there are comparatively few cases in which undescended testes are associated.

TABLE 1.—*Incidence of Undescended Testes*

Year	No. Examined	Bilateral	Right	Left	Unilateral	Total Cases	Incidence
1931	5,102	63	38	19	57	120	2.35
1932	4,673	53	40	19	59	112	2.48
1933	4,548	30	21	12	33	63	1.38
1934	4,249	46	17	15	32	78	1.60
1935	4,474	16	16	11	27	43	0.96
1936	4,362	25	20	20	40	65	1.48
1937	4,201	13	31	19	50	63	1.49
7 yr.	31,609	246	183	115	298	544	1.72

TABLE 2.—*Results of Operation*

Age of Patient	Size	Consistency	Position
8*	Normal—good	Firm—good	Low scrotal—good
9*	Small—fair	Soft—fair	High scrotal—fair
11*	Atrophy—poor	Atrophy—poor	Atrophy—poor
13*	Small—fair	Soft—fair	Low scrotal—good
8	Small—fair	Soft—fair	External inguinal ring—poor
9	Normal—good	Firm—good	High scrotal—fair
9	Small—fair	Soft—fair	High scrotal—fair
9	Normal—good	Firm—good	Low scrotal—good
9	Small—fair	Soft—fair	High scrotal—fair
10	Small—fair	Soft—fair	Midscrotal—fair
11	Small—fair	Soft—fair	High scrotal—fair
11	Small—fair	Soft—fair	Over symphysis—poor
11	Small—fair	Soft—fair	High scrotal—fair
14	Normal—good	Firm—good	Low scrotal—good

Evaluation—Number of Results 42

	Good	Fair	Poor
Size	4	9	1
Consistency	4	9	1
Position	4	7	3
Total	12	25	5

* Operated on by orchidopexy only; all others had hernia also.

The relation of hernia to cryptorchidism in this series is interesting. One hears today over and over the ancient dogma "the undescended testis is always accompanied by a hernia." It may be true that hernial sacs are present with this condition and many of the patients may have a definite hernia at some future date, but surely this is no valid excuse for recommending surgical intervention in every case.

RESULTS OF TREATMENT

In spite of the poverty at the Boys Club, some of the boys have received treatment at various hospital clinics throughout the city. In all, nineteen have undergone therapy.

In five cases endocrine products were injected. In all the testes failed to descend when treatment was declared adequate and injections were stopped. These figures are of no appreciable value except in that the boys were all between the ages of 7 and 9 years, when it is admitted that endocrine therapy is of doubtful value.

In four instances orchidopexy was performed for the purpose of placing the testis in the scrotum. In ten it was performed in conjunction with the repair of definite hernia. A total, then, of fourteen operations to replace the testes have been done by various surgeons.

In evaluating the results of operation for this condition, all authors have designated the outcome as good, fair or poor. I do not believe that this is an honest method of reporting results.

In each operation for undescended testis there are three results to be obtained: 1. The testis should lie in its normal low-scrotal position. 2. It should be firm in consistency. 3. It should be normal in size. Each of these results may be good, fair or poor. Thus, in reporting the results in this series of fourteen cases I kept in mind that there are actually forty-two optimum conditions to be obtained, and the results according to this system are tabulated in table 2.

In an effort to obtain forty-two good results, only twelve were obtained, a poor showing. Just how to

TABLE 3.—*Age of Descent of Testes*

Age	Bilateral	Unilateral	Total
7	6	3	9
8	9	3	12
9	14	10	24
10	12	11	23
11	28	23	51
12	36	34	70
13	28	25	53
14	20	12	32
15	7	12	19
16	1	4	5
17	1	1	2
Total	162	138	300

TABLE 4.—*Age at Which Testes Were Undescended at Last Examination*

Age	Bilateral	Unilateral	Total
7	7	4	11
8	4	8	12
9	8	9	17
10	12	9	21
11	14	29	43
12	16	39	55
13	9	20	29
14	1	10	11
15	1	8	9
16	1	3	4
17	1	4	5
Total	74	142	217

evaluate the twenty-five fair results is a matter of opinion. The small, soft testis high in the scrotum probably retains its endocrine function but not its spermatogenic one. In my opinion therefore, when the testis is of this type after operation the results should be classed as poor, since even without operation and with continued inguinal position the testis may function as well. If for the sake of argument I choose so to classify the fair results, the results become good twelve and poor thirty—abominable.

OUTCOME WITHOUT TREATMENT

In thirteen of the 246 cases of bilateral undescended testes, the two testes did not behave in the same way. The testes descended spontaneously but one preceded its fellow into the scrotum. The interval in ten instances was one year, in two instances two years and in one instance three years.

When these thirteen and the fourteen cases in which operation was performed are eliminated, there remain 517 cases to be considered. Many of these have been observed year after year and therefore are of great interest. Because the boys who visit the club come from the class of people who are frequently on the move, many of the cases have been lost. The average turnover year by year in the entire club is approximately 29 per cent. If this average holds true among the boys in this study, one would expect to lose about 157 cases. At the end of the survey there were 217 cases of undescended testes remaining or lost. If the number of boys with the condition found in the last year of examining (1937) who have not been reexamined to determine the fate of the testes (sixty-three) is added to those one might expect to lose because of the average turnover of boys (157), the expected number of cases of testes still undescended would be 220; actually it is 217.

Tables 3 and 4 have been prepared to show the age at which spontaneous descent occurred or the age at which nondescent was found at the last examination.

Table 3 shows that spontaneous descent resulting in a normal testis as to size, consistency and position occurred in 300 instances: 162 cases of bilateral and 138 cases of unilateral undescended testes. May this forever dispel the saying "spontaneous descent is so rare that operation should never be postponed on this account."

It is to be noted that between the ages of 11 and 13 the testes descended spontaneously in 174 cases without therapy of any kind. Between these ages the youth becomes the adolescent; the voice changes, the pubic hair develops and all the secondary sex characteristics manifest themselves because of a glandular readjustment. Now it is found that also during this period descent occurs in the undescended testis. In reviewing the statistics of advocates of the glandular treatment it immediately becomes apparent that it is at approximately the same age that their therapy is effective. Rarely can an undescended testis be enticed into the scrotum by glandular therapy before this age unless the therapy is pushed to the extent of bringing on premature adolescence and the secondary sex characteristics. So one may conclude that glandular therapy before the age of puberty is useless (no results) or harmful (bringing on premature adolescence) and at the age of puberty is unnecessary. At best it can be considered only an adjunct of doubtful value.

So far as surgical intervention is concerned, it is time to reconstruct all the old ideas. If operations "before 11" had been carried out in this group of cases, 232 useless and detrimental procedures would have been performed. These figures show that operation before the sixteenth year would have been a definite mistake in most instances. Tables 3 and 4 show that after the fifteenth year there were still sixteen cases of nondescent, and in seven of these descent occurred spontaneously. I would suggest a new tenet "Do not operate for undescended testis before the sixteenth year unless operation is indicated by some associated condition.

SUMMARY

In 313 of 544 cases of cryptorchidism spontaneous descent occurred; operation was performed in fourteen instances. No follow-up examinations were made after discovery of the condition in sixty-three instances, and 154 patients were lost. Undescended testis as a manifestation of Fröhlich's syndrome is not of frequent occurrence and as a companion to other congenital defects is rare. In the fourteen cases of orchidopexy here discussed the results, evaluated according to a new system, were extremely discouraging. Judged in the light of the outcome without therapy, endocrine therapy should be used only as an adjunct to oncoming puberty and is in reality not a necessity. Orchidopexy should not be attempted before the sixteenth year unless indicated by some associated condition.

2 East Fifty-Fourth Street.

CORONARY ATHEROSCLEROSIS IN DIABETES MELLITUS

A POSTMORTEM STUDY

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Coronary atherosclerosis manifested clinically by angina pectoris and coronary thrombosis has become an increasingly important cause of disability and death in the United States, especially among the business and professional leaders of the community. Its unusual frequency in patients with diabetes mellitus makes a study of the possible factors responsible for this increase important not only in relation to diabetes but also to coronary disease in the general population. More than one half of the 500,000 living diabetic patients in the United States are destined to die of some form of occlusive vascular disease, of which coronary sclerosis is the most important. Among nondiabetic patients, coronary artery disease is apparently largely responsible for the relatively recent and striking increase in deaths from heart disease in middle and late life. Between 1930 and 1934 the mortality from recognized coronary disease increased from 4.7 to 18.8 per hundred thousand in the experience of the Metropolitan Life Insurance Company, according to Dublin.[1]

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1. Dublin, L. I., in Levy, R. L.: Diseases of Coronary Arteries and Cardiac Pain, New York, Macmillan Company, 1936.

THE PRESENT STUDY

It is only within comparatively recent times that special interest in the coronary arteries has become sufficiently acute for descriptions of these vessels and the associated lesions to be carefully and uniformly made at autopsy. This information is the most important basis for statements as to the frequency of coronary artery disease and has accumulated sufficiently for comparative studies to be made in large series of cases only in relatively recent years. For our present purpose the records of autopsies on 349 patients with diabetes mellitus performed since 1921, consisting of fifty-seven from the Massachusetts General Hospital and 292 from the New England Deaconess Hospital, have been utilized for comparison with 3,400 autopsies on nondiabetic patients performed at the Massachusetts General Hospital since 1925. It is believed that this series of 3,400 autopsies on nondiabetic patients at the Massachusetts General Hospital is a representative cross section of the general population in this vicinity, since it includes many postmortem examinations on young patients as well as on those in middle and later life from a hospital which embraces not only adult services, both medical and surgical, but pediatric and orthopedic services as well, and represents all economic levels of the community (the poor, persons of moderate means and the well-to-do). Our diabetic series, unlike those from the larger European clinics reported in the nineteenth century, is not made up solely of patients dying soon after the onset of diabetes but includes a considerable number of patients followed over a long period of time. Furthermore, this diabetic series represents all economic levels of the community, as does our nondiabetic series.

TABLE 1.—*Atherosclerosis of the Coronary Arteries in 349 Patients with Diabetes at Postmortem Examination*

Age Groups	Total Cases	No Significant Atherosclerosis: No Atherosclerosis	No Significant Atherosclerosis: Atherosclerosis Without Narrowing	Atherosclerosis With Narrowing	Occlusion
Males					
11-20	9	9	..	..	..
21-30	3	3	..	..	..
31-40	9	4	3	1	1
41-50	13	5	4	2	2
51-60	39	10	9	7	13
61-70	58	8	12	10	28
71-80	22	6	3	4	9
81-90	4	1	..	3	..
	157	46	31	27	53
Females					
11-20	3	3	..	..	..
21-30	5	3	2	..	..
31-40	4	3	..	..	1
41-50	27	14	5	5	3
51-60	53	11	20	9	13
61-70	65	10	13	16	26
71-80	30	..	7	10	13
81-90	5	..	1	1	3
	192	44	48	41	59

The possibility of subdividing the atherosclerotic lesions in the coronary arteries in great detail was considered, but a simple classification of the lesions was finally adopted. The cases were arranged by sex and age at death into four general groups according to the condition of their coronary arteries post mortem: first, cases without macroscopic evidence of atherosclerosis; second, cases showing atherosclerosis as indicated by fatty plaques or calcification but without significant narrowing of the lumen; third, atherosclerotic changes with definite narrowing of the lumen of one or both coronary arteries or their major branches; fourth, cases showing an actual occlusion of a coronary artery, either recent or healed and with or without myocardial infarction. Tables 1 and 2 include the pertinent data from the autopsies on 349 diabetic patients and 3,400 nondiabetic patients.

SEX

A striking difference between the diabetic and nondiabetic groups appears in the total distribution of cases by sex. In the diabetic series only 45 per cent were males and 55 per cent females, whereas in the nondiabetic series 63.3 per cent were males and 36.7 per cent were females.[2]

Under the subject of sex should be mentioned the possible influence of hypertension. We have not attempted as yet to make a complete analysis of the influence of hypertension in the two comparable series. However, it may be noted that in 292 of the autopsies on diabetic patients hypertension was present in only forty-nine male in contrast with ninety-five female patients.

AGE

Coronary Occlusion.—Under the age of 40 there were two of thirty-three diabetic patients (6 per cent) with coronary occlusion, while there were seven of 1,090 nondiabetic patients (0.6 per cent) with coronary occlusion. Between the ages of 40 and 60 there were thirty-one of 132 diabetic patients (23 per cent) with coronary occlusion and eighty of 1,273 nondiabetic patients (6 per cent) with coronary occlusion. Between the ages of 60 and 80 there were seventy-six of 175

TABLE 2.—*Atherosclerosis of the Coronary Arteries Post Mortem in 3,400 Patients Without Diabetes* *

Age Groups	Total Cases	No Significant Atherosclerosis: No Atherosclerosis	No Significant Atherosclerosis: Atherosclerosis Without Narrowing	Atherosclerosis With Narrowing	Occlusion
Males					
0-10	180	179	1	0	0
11-20	114	112	2	0	0
21-30	138	111	23	2	2
31-40	200	151	40	5	4
41-50	335	192	96	24	23
51-60	490	170	185	88	47
61-70	437	92	181	112	52
71-80	220	25	82	89	24
81-90	35	2	12	17	4
91-100	4	1	1	1	1
	2,153	1,035	623	338	157
Females					
0-10	135	134	1	0	0
11-20	78	76	2	0	0
21-30	105	92	12	0	1
31-40	140	120	19	1	0
41-50	191	142	40	7	2
51-60	257	112	97	40	8
61-70	231	59	94	61	17
71-80	89	7	40	33	9
81-90	21	0	7	12	2
91-100	0	0	0	0	0
	1,247	742	312	154	39

* Fifty-seven diabetic cases included in the previously published series from the Massachusetts General Hospital (to be published in the American Heart Journal) have been replaced by the next consecutive fifty-seven nondiabetic cases from the autopsy protocols.

2. It is a curious fact that within recent years mortality rates for diabetes have shown a preponderance among females. Although in general a large number of diabetic patients coming for treatment seems to show an almost even division between the sexes, actually the death rates indicate in recent years a steady increase in female mortality. It has been thought that this preponderance in female mortality is to be largely accounted for by the fact that only within recent years have females received medical attention comparable to that received by males and that therefore the preponderance of diabetic female mortality is due to the factor of improved diagnosis in women at present and of more careful treatment given to men in the past.

diabetic patients (43 per cent) with coronary occlusion and 102 of 977 nondiabetic patients (10 per cent) with coronary occlusion. Over the age of 80 there were three of nine diabetic patients (33 per cent) with coronary occlusion and seven of sixty nondiabetic patients (11 per cent) with coronary occlusion. Thus, for all ages, coronary occlusion occurred in 112 of 349 diabetic patients (32 per cent) as compared with 196 of 3,400 nondiabetic patients (6 per cent).

Coronary Narrowing Without Occlusion.—Under the age of 40, coronary narrowing without occlusion occurred in one of thirty-three diabetic patients (3 per cent) and in eight of 1,090 nondiabetic patients (0.7 per cent). Between 40 and 60 years of age there were twenty-three such cases among 132 diabetic patients (17 per cent) and 159 such among 1,273 nondiabetic patients (12 per cent). Between 60 and 80 years of age there were forty such cases among 175 diabetic patients (22 per cent) and 295 among 977 nondiabetic patients (30 per cent). Over the age of 80, coronary narrowing without occlusion occurred in four of nine diabetic patients (44 per cent) and in thirty of sixty nondiabetic patients (50 per cent). For all ages there was thus significant coronary narrowing in sixty-six of 349 diabetic patients (19 per cent) compared to 492 of 3,400 nondiabetic patients (14 per cent).

No Significant Coronary Atherosclerosis (no narrowing of the lumen).—Under the age of 40, no significant coronary sclerosis was noted in thirty of thirty-three diabetic patients (91 per cent) and in 1,075 of 1,090 nondiabetic patients (98 per cent). Between 40 and 60 years of age there were seventy-eight such cases among 132 diabetic patients (59 per cent) and 1,034 such among 1,273 nondiabetic patients (81 per cent). Between 60 and 80 years of age there were fifty-nine such cases among 175 diabetic patients (35 per cent) and 580 among 977 nondiabetic patients (59 per cent). Over the age of 80 no significant coronary sclerosis was found in two of nine diabetic patients (22 per cent) and in twenty-three of sixty nondiabetic patients (38 per cent). Thus for all ages there was no significant coronary sclerosis in 170 out of 349 diabetic patients (49 per cent) compared to 2,712 out of 3,400 nondiabetic patients (82 per cent).

The crucial point is the duration and severity of the diabetes. Among 140 diabetic patients without significant atherosclerosis, fifty-seven had had diabetes less than three years and seventy-six for less than five years. Unusual mildness characterized thirty-two cases of diabetes of more than ten years' duration.

It is thus evident that the difference between the diabetic and the nondiabetic patients is greatest in those showing actual occlusion of a coronary artery. In the diabetic series coronary occlusion from the age of 51 to 80 years is almost the same in males and in females (table 4). In nondiabetic patients, on the other hand, coronary occlusion is five times as frequent in males as in females between the ages of 51 and 60, but from 61 to 80 years of age the two sexes become almost the same. The excessive frequency of coronary occlusion in diabetic patients as against nondiabetic patients, however, continues late in life.

TABLE 4.—*Coronary Occlusion in Diabetic and Nondiabetic Patients in Percentage of Cases in Age Groups*

	Males				Females			
	Diabetic		Nondiabetic		Diabetic		Nondiabetic	
Age Groups	Cases with Occlusion	Per Cent of Total	Cases with Occlusion	Per Cent of Total	Cases with Occlusion	Per Cent of Total	Cases with Occlusion	Per Cent of Total
41-50	2	15	23	7	3	11	2	1
51-60	13	33	47	10	13	25	8	3
61-70	28	48	52	11	26	40	17	7
71-80	9	41	24	11	13	43	9	10

It is not possible to attribute so high an incidence of coronary thrombosis in both male and female diabetic patients merely to the prolongation of diabetic treatment and the aging of the diabetic group. It is not possible to assume that there has been any selection in the cases. At the New England Deaconess Hospital, where the majority of the diabetic patients were studied, the distribution of patients among ward patients in contrast to private room patients is about the same as at the Massachusetts General Hospital, where cases both from private wards and from the public wards are included.

TABLE 3.—*The Degree of Atherosclerosis in Diabetic and Nondiabetic Patients According to Age*

	Total Cases		No Significant Atherosclerosis				Atherosclerosis with Narrowing				Occlusion			
			Diabetic		Nondiabetic		Diabetic		Nondiabetic		Diabetic		Nondiabetic	
	Diabetic	Non-diabetic	Cases	Per Cent	Cases	Per Cent	Cases	Per Cent	Cases	Per Cent	Cases	Per Cent	Cases	Per Cent
Under 40	33	1,090	30	91	1,075	98	1	3	8	0.7	2	6	7	0.6
40-60	132	1,273	78	59	1,034	81	23	17	159	12	31	23	80	6
60-80	175	977	59	35	580	59	40	22	295	30	76	43	102	10
80 plus	9	60	2	22	23	38	4	44	30	50	3	33	7	11
Totals	349	3,400	169	48	2,712	82	68	20	492	14	112	32	196	6

COMMENT

In order to explain the excessive development of coronary disease in the diabetic patients of this series, any or all of the contributing factors usually considered in coronary atherosclerosis are illustrated, but no single one provides an adequate answer. Aging of the arteries must certainly be accepted as of fundamental importance, even though it must be granted that arteriosclerosis of the coronary arteries may occur—and rarely does occur—even at very young ages. An outstanding feature in the diabetic group has been the disturbance in the cholesterol metabolism as evidenced by visible lipemia or by elevation of the plasma cholesterol at certain stages of the diabetes. The more advanced degrees of coronary atherosclerosis occurred in the patients whose diabetes was of long duration, whereas absence of significant atherosclerosis was noted in cases of short duration or of unusual mildness.

Among seventeen diabetic patients who had multiple infarction of the heart, ten were males and seven females. The average duration of diabetes in these cases was 10.9 years for the males and 9.2 for the females. In one striking instance the patient, aged 28

at onset of diabetes, had lipemia when he was 33. At death ten years later eight distinct healed areas of infarction were found. Death occurred from an acute coronary occlusion. Similarly, in another instance, lipemia retinalis occurred at the age of 21.

SUMMARY

1. A comparison of atherosclerotic lesions in the coronary arteries of 349 diabetic patients and 3,400 nondiabetic patients at autopsy has been made according to sex and decade of age.

2. Coronary occlusion in this series was much more frequent in diabetic than in nondiabetic persons, the difference, for example, in the age group from 40 to 60 being 23 per cent (thirty-one of 132 cases) for the diabetic as compared to 6 per cent (eighty of 1,273 cases) for the nondiabetic patients.

3. Coronary narrowing without occlusion was also found more commonly in the diabetic than in the nondiabetic patients under the age of 60; for example, 17 per cent compared to 12 per cent in the age group of 40 to 60.

4. Significant atherosclerosis with occlusion or narrowing was absent in 49 per cent of the diabetic patients and 82 per cent of the nondiabetic patients.

5. Occlusion of a coronary artery occurs in diabetic women almost as frequently as in diabetic men, whereas in nondiabetic patients it is far less frequent in women than in men up to the age of 60.

THE SIGNIFICANCE OF VULVOVAGINITIS IN PREGNANCY

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The occurrence of vulvovaginitis during pregnancy is of more than casual interest because of certain possible or presumed effects on the maternal or fetal organism. Only recently has the monilia been frequently noted, and the clinical importance seemingly is still uncertain. In our experience, several years of clinical observation of a specific type of vulvovaginitis caused by the monilia group produced confusing opinions and few satisfactory or reliable conclusions.

To test the validity of existing concepts, a series of 500 unselected pregnant women were studied (1) to find the incidence of monilial vulvovaginitis in pregnancy, (2) to obtain the incidence of subjective signs and symptoms in pregnant patients with moniliasis, (3) to determine the association, if any, of puerperal morbidity in a group with moniliasis as compared with a control group, (4) to note the association and significance of possible pathogens and other organisms with the monilia, (5) to record the frequency of neonatal thrush in the newborn of mothers with moniliasis as compared with the newborn of mothers without moniliasis and (6) to determine the hydrogen ion concentration of the vaginal secretions in pregnancy with and without moniliasis.

METHOD FOR COLLECTING SPECIMENS

The vulva was cleansed with pledgets of cotton saturated with saponated solution of cresol and a sterile bivalve speculum introduced into the vagina. With an ordinary sterile teaspoon, material was scraped from the lateral walls of the vagina and deposited in a sterile Petri dish for subsequent transference to mediums. Additional material could be obtained from the anterior and posterior vaginal wall by rotating the handle of the speculum 45 degrees to the horizontal position. An average of 4 cc. of material was obtained.

From the Margaret Hague Maternity Hospital.

METHOD OF CULTURE AND IDENTIFICATION

A portion of the specimen was planted in dextrose broth and incubated for from twenty-four to forty-eight hours at 37 C. Broth cultures which contained yeast cells were streaked on Sabouraud's dextrose agar and incubated for from twenty-four to forty-eight hours. Colonies on the Sabouraud's medium were smooth, round and white or cream colored, with a few specimens showing greenish discoloration. Microscopic observation of smears from typical colonies showed thick myceliums with terminal conidia.

The original broth cultures containing staphylococci and streptococci were streaked on blood plates and identified in this manner. Members of the colon-typhoid group and proteus group were identified by their reaction on Kligler lead acetate slants and Endo's agar. The diphtheroids, Döderlein bacilli and Micrococcus tetragenus were identified by direct microscopic observation of broth culture and the appearance of colonies on blood plates. No attempt was made to identify the various strains of these organisms, as we did not feel that such a study was pertinent to our purpose.

METHOD OF DETERMINING THE HYDROGEN ION CONCENTRATION OF VAGINAL SECRETIONS IN PREGNANCY

The hydrogen ion content was estimated by a modification of the Fenton "spot" method.[1] A drop of indicator was placed in the Petri dish near the vaginal specimen. By tilting the dish, the dye was brought into contact with the specimen. The color was compared with that of a buffer solution. The dyes most used were bromcresol green, bromphenol blue and chlorphenol red. The use of buffer solutions was abandoned about one quarter of the way through the series, and the colors were compared with the color chart reprinted from W. Mansfield Clark.[1]

ANALYSIS OF RESULTS

In our series of 500 cases we found the monilia in fifty-four, an incidence of 10.8 per cent. Haussmann[2] found that 11 per cent of his patients had a yeast fungus and that the fungus did not necessarily produce symptoms. Von Winckel[3] found mild mycotic vulvovaginitis in 4 per cent of 150 pregnant women. Woodruff and Hesseltine[4] found the incidence of fungi in the vagina of women in the third trimester of pregnancy to be 28 per cent.

Of the fifty-four women in our series only five (9.2 per cent) complained of any discomfort. Each of these five complained only of pruritus. This finding supports Wong and Kurotchkin's[5] observation that "it is not common for monilia to cause enough symptoms to make patients seek treatment." Fourteen (3.1 per cent) of the 446 women without moniliasis complained of itching and/or burning. Several observers have recorded that

1. Clark, W. Mansfield: The Determination of Hydrogen Ions, ed. 3, Baltimore, Williams and Williams Company, 1928.
2. Haussmann, David: Parasites des organs sexuels femelles de l'homme et de quelques animaux, avec une notice sur le developpment de l'Oidium albicans Rob, Paris, J. B. Baillière, 1875.
3. von Winckel, Franz: Berl. Klin. Wchnschr. **3**: 237-239, 1866.
4. Woodruff, P. W., and Hesseltine, H. C.: Am. J. Obst. & Gynec. **36**: 467-471 (Sept.) 1938.
5. Wong, Amos, and Kurotchkin, T. J.: Monilia Vulvo-Vaginitis, Chinese M. J. **48**: 1058-1065 (Oct.) 1934.

the degree of local irritation varies greatly. Our patients complained only of pruritus. Smarting and burning and a feeling of dryness has been described, also pelvic fulness and vaginal sensitiveness. Often the symptoms are aggravated at night.

Castellani [6] described two principal types of monilial vulvovaginitis: so-called "vaginal thrush," presenting white patches of membrane on the vaginal wall, the membranous type, and the purulent type, producing a thick purulent vaginal discharge. We noted none of the second type in our series of cases. Redness of the vaginal mucosa, introitus and labial mucosa is the sole finding in cases of mild involvement. In cases of more severe involvement the mucosa has a granular appearance and the vagina, cervix and occasionally the urethra are covered with a varying thickness, either in patches or in extensive membranes, of greenish yellow pasty adherent material, with an ooze of grayish watery material containing yellow flecks of myceliums. The pasty green accumulation can be partially removed with cotton or a spoon without causing bleeding, although vigorous removal from the granular upper part of the vagina was frequently associated with the appearance of pinpoint bleeding spots.

There were three cases of thrush in the newborn of this series, none of whose mothers had moniliasis.

Three patients (5.5 per cent) in the group with moniliasis were morbid: One had a cesarean section; another, with preeclampsia, abruptio placentae and fibromyomas, was operated on and the uterus removed, and the third had endometritis.

The morbidity in the group without moniliasis consisted of breakdown of an episiotomy scar in one case, mastitis in six, mild endometritis in twelve, an undetermined condition in four, cesarean section in six, thrombophlebitis in two, infection of the upper respiratory tract in two, scarlet fever in one and pyelitis in one. This is a total of thirty-five cases, or 7.8 per cent, a morbidity rate higher than in the group with moniliasis. Such authors as Crossen,[7] Graves,[8] Frank,[9] Davis [10] and Flusser [11] have expressed the opinion that Monilia albicans is pathogenic but that the infection is usually mild and does not occur often. Zweifel,[12] Stephan [13] and Castellani and Taylor [14] have said that they doubt the pathogenicity of the fungus.

Monilia was twice associated with Staphylococcus aureus, three times with diphtheroids and Bacillus proteus vulgaris and once with Staphylococcus albus, Bacillus coli and Döderlein's bacillus. In none of these cases was there any morbidity.

Kessler found the hydrogen ion concentration of the vaginal discharge to be between 4 and 5 during pregnancy. Oberst and Plass [15] found it to be 4.76. In our series the range was found between 3.3 and 6.1, with an average p_H of 4.35. In the group with moniliasis it was essentially the same, 4.33.

We found the following organisms other than Monilia albicans: Döderlein's bacillus 279, diphtheroids forty-eight, Staphylococcus albus 164, Bacillus lactis aerogenes two, Bacillus coli forty, Staphylococcus aureus twenty-six, Bacillus proteus vulgaris nine, nonhemolytic streptococcus six, Streptococcus haemolyticus three and Micrococcus tetragenus one.

Plass [16] and his co-workers noted that the monilia disappeared from the vaginal tract soon after delivery. We observed that the vagina was essentially free in eight days and almost invariably clear within two weeks post partum. The lochial flow seems to exert a strong inhibitory effect on the fungus and to play an important part in causing its disappearance.

COMMENT

For the purposes of our investigation, identification of the various strains of the monilia or bacteria found was unnecessary. Jones and Martin [17] have recently identified sixty-eight strains of yeastlike organisms from the vaginal tract of fifty-two pregnant women and sixteen nonpregnant women. They have developed an excellent technic for identification.

The same authors described a new species of monilia, the "stellatoidea." It is similar to Monilia albicans, and it may be of significance in the interpretation of certain clinical observations. It occurred in 43 per cent of their series and was shown to be nonpathogenic for rabbits. It may be a harmless parasite in the human vagina. The authors stated further that many of the yeasts formerly identified as Monilia albicans may prove to be Monilia stellatoidea. The presence of this yeast may not produce any subjective signs, and it may have been present in the majority of our cases.

Estrin is produced in excess during pregnancy, as is shown by the increased concentration in the blood and urine. It causes the vaginal mucosa to undergo marked proliferation. The cells are filled with glycogen, and there is an excessive desquamation of these cells. The glycogen is converted to lactic acid and the end result is a vaginal secretion with low p_H. Miura [18] has estimated that the amount of titrable lactic acid increases from 0.4 per cent in early pregnancy to 0.9 per cent by the end of pregnancy.

Since an abundance of glycogen in an acid medium is an ideal environment for the growth of yeast cells, pregnancy provides an ideal opportunity for the growth of the monilia in the vagina. The recent excellent work of Davis and Pearl [19] seems to substantiate this opinion.

SUMMARY

In a series of 500 cases of pregnancy we found the monilia in fifty-four, 10.8 per cent.

Only five of the fifty-four patients, 9.2 per cent, complained of any discomfort.

Three patients (5.5 per cent) in the group with moniliasis and thirty-five (7.8 per cent) of the group without moniliasis were morbid.

There was no morbidity in the group of patients who had other organisms associated with the monilia.

There were three cases of thrush in the newborn of this series. The mothers were in the group without moniliasis. Thus there would appear to be no important relation between these conditions. We found the p_H of the vaginal discharge to be 4.35.

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AFTER-TREATMENT OF POLIOMYELITIS

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When one turns back the pages of medical history and reads of the epidemics of the Middle Ages, one is struck by two things: the helplessness of the population and the superstition of the human mind. When an epidemic of poliomyelitis occurs today, the helplessness remains but the superstition has gone. Very little is known of the prevention of poliomyelitis. No specific treatment exists for the acute stage of the disease, but considerable progress has been made in the convalescent care of the residual paralysis. Statistics collected in Sweden between 1905 and 1937 showed 25,000 cases of poliomyelitis, 4,000 deaths and 10,000 cases of residual paralysis. This means that 40 per cent of the patients were left more or less physically handicapped and shows the reason for the dread of epidemics. Harry [1] of England has reported that 648 sporadic cases of poliomyelitis occur annually.

In this paper I shall confine myself to the discussion of the nonsurgical treatment required during the recovery period following an attack of anterior poliomyelitis. This recovery period is very long because one is dealing with disease of the nervous tissue. The nervous tissue is a highly specialized structure which recovers very slowly, and, when destroyed, the nerve cells cannot be reproduced or replaced.

The pathologic process in infantile paralysis is as follows: The virus enters the body through the upper respiratory tract and gains access to the spinal cord by the olfactory nerve. The virus attacks the anterior horn region of the cord, where the motor nerve cells are located, which innervates the skeletal muscles of trunk and extremities.

The after-treatment is based on the disease of the anterior horn cells. Microscopic examination of experimental animals and postmortem examinations lead to the belief that the degree of destruction can be classified in four forms:

1. Round cell infiltration and a transitory productive inflammation can produce enough pressure on the anterior horn cells to inhibit their function temporarily.

2. The horn cells may be starved by having their nutrition interfered with, either by a surrounding hemorrhage or a blocking of the small vessels that supply the necessary nutrition.

3. The virus may invade the nerve cell and injure it without destroying it.

4. The nerve cell may be completely destroyed, which means that there is permanent damage with no chance of recovery.

It seems only reasonable to believe that in cases of the first three types of lesions recovery will occur, and Dr. Bennett states that recovery takes place in cases of the first type in from two to sixty days and in cases of the second type in from sixty to 360 days but in cases of the third type in from three to five years.

Although the actual pathologic change in poliomyelitis is in the spinal cord and not accessible for inspection, one can judge by examining the skeletal muscles how much damage has been done. However, no conclusions can be drawn from such an examination as to the qualitative damage to the horn cells. No prognosis can be given as to which muscles will recover and which ones will be permanently paralyzed. I believe that one should take an optimistic attitude and hope that all the muscles will recover. Therefore one should treat each muscle as a convalescent part going on to recovery and give it all the protection and care that are necessary for functional restoration. I know of no other disease in which the after-treatment is more important than in poliomyelitis, but before treatment is undertaken there must be a grading of the patient's muscles. This is done by a muscle test originated by Lovett [2] and still used with various modifications. Kendall's [3] muscle grading, probably the most scientific, is shown in table 1.

MUSCLE REEDUCATION

Sir Robert Jones was one of the pioneers who advocated rest and protection for a paralyzed limb. After the epidemic of infantile paralysis in 1916, the most extensive one in the United States, during which in New York alone there were 10,000 cases, certain definite rules were laid down by Lovett.[2] They covered rest and protection, the clinical muscle and nerve test and muscle reeducation. Lovett,[2] Legg,[4] Osgood and Wilhelmina Wright, all of Boston, deserve the credit for this early work. Boston was the fountain of knowledge for the treatment of infantile paralysis. About 1926, Lowman [5] of Los Angeles began to experiment with muscle reeducation exercises under water. A great deal of emotional enthusiasm took charge of the crippled children. The federal government, the state, the county, the city and benevolent societies all over the country took a hand. Elaborate institutions grew up, with expensive equipment, and therapeutic pools reminiscent of oriental splendor were installed. I have visited crippled children's hospitals that cost close to a million dollars and had only about twenty patients. I have seen a beautiful pool in charge of uniformed nuns who blew their whistles and the children tumbled into the pool, where they played for fifteen minutes. Then the whis-

TABLE 1.—*Kendall's System of Muscle Grading*

Percentage	Equivalent of	Test
0	Zero (0)	No contraction felt in the muscle
5	Trace (Tr.)	In a 5 per cent muscle a contraction is felt but there is no apparent movement of the part
10	Poor minus (P—)	A 20 per cent muscle moves the part through a partial arc of motion with gravity eliminated
20	Poor (P)	
30	Poor plus (P+)	
40	Fair minus (F—)	A 50 per cent muscle completes the whole arc of motion against gravity but may tire after from 3 to 6 movements
50	Fair (F)	
60	Fair plus (F+)	A 60 per cent muscle completes the arc of motion against gravity and a minimum amount of resistance
70	Good minus (G—)	An 80 per cent muscle completes the arc of motion against gravity and a medium amount of resistance several times without showing signs of fatigue but tires quickly or is unable to complete the arc of motion against a maximum amount of resistance
80	Good (G)	
90	Good plus (G+)	
95	Normal minus (N—)	A 100 per cent muscle completes the arc of motion against gravity and a maximum amount of resistance several times without showing signs of fatigue
100	Normal (N)	
Contracted	Normal plus (N+)	

Read before the physical education alumnae at Wellesley College, May 21, 1938.

From the Department of Physical Therapy of the New York Hospital and Cornell University Medical College and the Hospital for Ruptured and Crippled.

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5. Lowman, C. L.: Physical Equipment of Therapeutic Pools, J. A. M. A. **94**: 845 (March 22) 1930.

tles blew again and the so-called treatment was over. This emotional attitude was carried to such extremes that the patient with infantile paralysis became the spoiled child among the physically handicapped. In the enthusiasm for doing things for crippled children there developed an overemphasis on activities and neglect of two fundamental principles: the importance of rest and the protection of the weakened muscles.

These principles have always governed the treatment of drop wrist, drop foot and other forms of peripheral paralysis. The Kendalls of Children's Hospital School

TABLE 2.—*Analysis of Fifty-Four Cases of Poliomyelitis*

Extent of Paralysis	Number	Percentage
One upper extremity	10	19
Both upper extremities	2	4
One lower extremity	27	50
Both lower extremities	7	12
Both upper and lower extremities	8	15
Total	54	

Admission	Number	Improvement, Percentage
Within six months of acute onset	26	29.07
Within six to twelve months of acute onset	28	16.39
Total	54	

of Baltimore have brought back the logical and rational view of the muscle reeducation of patients with infantile paralysis. They have emphasized the neutral or ideal rest position for protection of the entire body. In the protection of the body they included prevention of any stretching or strain of weakened muscles. This was accomplished by the wearing of protective supports, special care in handling the patient during nursing, and physical therapy. They also advocated restriction of the range of joint motion. Assistive movements were not allowed through the whole arc of function until the muscle was able to return actively to its shortened position. The Kendalls also advocated the use of heat, massage and pressure—suction treatment to prevent atrophy of the affected muscles.

Last winter I visited the Children's Hospital School in Baltimore and saw convincing results of the work done there, but I had hardly got back to New York when I came across another new idea in the treatment of poliomyelitis. It came out of Australia under the name of Sister Kenny's method. Mills [6] reported that only thirty-five patients with the acute form have been treated but claimed the maximum improvement in 1,400 clinic cases. This treatment, used for twenty years, is based on the theory that the pain in the acute form is vascular in origin. The conception of the pathologic process is as follows: At first there is venous stasis. This is followed by capillary stasis and capillary paralysis. As a result mild trophic changes develop in the skin, the joints, the fascia and especially the muscles. Immobilization of paralyzed limbs increases the vascular deficiency, leading to contraction of muscle sheaths and anemia of muscle fibers and fibrosis. The acute form is treated with passive movements and hydrotherapy. The reeducation exercises begin within one week of the onset of paralysis. The restoration of circulation is accomplished by alternating sprays of hot and cold water. Here is a treatment exactly opposite to the one previously described. It disregards rest and immobilization and involves energetic treatment by contrast baths and by movement through every range of joint every two hours. A finely graded system of reeducation exercises is started within the first week of paralytic manifestations.

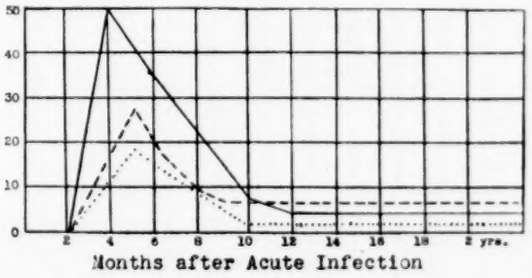
I have presented two opposite views on the after-treatment of poliomyelitis. With the present conception of the pathologic process of poliomyelitis one must accept Kendall's contribution as the more rational one. The objections to his treatment are:

1. If the regeneration of a nerve axon is at the rate of 0.5 mm. daily, it will take twenty days to grow an axon of 1 cm., 200 days for 1 decimeter and 2,000 days, or more than five years, for 1 meter. To keep a patient in bed with muscle protection for five years is neither humane nor practical.

2. Such long inactivity can hardly be imposed on a child without some psychologic injury. I totally ignored the mental attitude of patients with poliomyelitis until three years ago, when I was called to see a girl of 17 who was living on a small farm in Connecticut. She had had poliomyelitis for two years and had been told that nothing more could be done for her. Her paralysis was slight but her mental attitude was that of a village cripple. I sent her to Warm Springs, Ga., and in six months she was walking without assistance, had regained her mental balance and had taken up art, for which she was well suited.

I fail to see the rationale of Sister Kenny's treatment, and it is difficult to subscribe to the conception of pathology on which it is based.

My own theory of the after-treatment of poliomyelitis lies somewhere between the extremes described. I believe that there is little or no difference between the treatment of poliomyelitis and any other lower neuron paralysis. There is but little disagreement as to the treatment of a dropped wrist due to radial nerve paralysis or a dropped foot due to paralysis of the anterior tibial nerve. In such cases one supports the weakened muscles, prevents any overstretching and maintains the nutrition and tone of the muscle by heat, gentle massage and reeducation exercises. I have on record a patient of 15 who had her right anterior tibial nerve injured in September 1937. She had paralysis of the extensors of the ankle and toes until January 1938, when she was given a leg brace that held the foot at 90 degrees to the leg. In February the extension of the ankle and toes had returned except for the big toe. The brace did not support the big toe, and a new brace was ordered



Number of muscles whose power increased to good (unbroken line), increased to fair (broken line) and remained poor (dotted line). It can be seen that the power of a maximal number of muscles increased to good in the four months period and that at six months the power of only half did so, while after a year the power of very few increased to good.

which included it. In another month extension of the big toe had returned, and April 15 the patient was discharged perfectly well. She had the same treatment before and after the application of the braces. This case shows convincingly how important it is to prevent overstretching of weak muscless I believe that the greatest care should be taken to prevent unbalance between muscle groups which may lead to contractures and deformities. Any one who has seen the cold blue

6. Mills, F. H.: Treatment of Acute Poliomyelitis, Brit. M. J. **1**: 168 (Jan. 22) 1938.

extremities of patients with poliomyelitis in northern climates must realize the importance of maintaining the nutrition and tone of the convalescent muscles. However, the circulatory deficiency is in all probability secondary to the paralysis and not primary, as reported by Dr. Mills in Australia and as Sister Kenny's method presupposes. The treatment I prefer for the circulation is the application of paraffin and pressure-suction treatment. The muscle reeducation that I have employed is very much the same as that which Lovett and Wilhelmina Wright have described, and the exercises have been performed under water in a therapeutic pool with the temperature at about 92 F.

TABLE 3.—*Results of Treatment in Fifty-Four Cases*

	Number of Times Involved	Ability to Contract Against Gravity Fair to Normal, %	Capable of Moving Part with Gravity Eliminated After Treatment Completed Poor, %	No Useful Contraction, Trace to None, %
Lower extremity				
Gluteus maximus	108	58	39	3
Gluteus medius and minimus	108	59.5	35	4.5
Quadriceps femoris	108	46	28	26
Hamstrings	108	49.5	30	19.5
Calf muscles	108	46	24.5	29.5
Dorsal flexor of toes	108	55	21	24
Tibialis anterior and posterior	108	35	20	45
Peronei	108	45	22.5	32.5
Upper extremity				
Deltoid	22	42.5	36	21.5
Triceps	22	29.5	55.5	15
Biceps and brachialis	22	80	18	2
Short muscle of thumb	22	65	12	23

I am presenting in this paper a study of fifty-four cases of poliomyelitis from the epidemic of 1931 in New York City. The patients were treated under my direction at the Hospital for Ruptured and Crippled and at the New York Hospital. I was especially interested in comparing my figures with those of Harry.[1] I believe that the treatment of the two groups of patients was similar except that my patients were treated under water and Harry's patients were treated in a dry gymnasium. This study therefore represents the first comparison of underwater treatment versus table treatment using similar exercises or the new treatment versus the old one.

It is not an easy task to evaluate the recovery from poliomyelitis. Very few reports in medical literature actually show the benefit of the treatment. The most valuable report is that of Legg,[4] who studied fifty-three cases and showed conclusively that steady follow-up treatment lasting even nine years is not only beneficial in preventing deformities but equally important in increasing muscle power. He also showed that the amount of improvement was in direct proportion to the attendance and the cooperation with regard to treatments.

The subjects for my investigation were patients who were admitted to the hospitals between 1931 and 1935 and were followed at least three years. Their only treatment consisted in underwater exercises in specially constructed therapeutic pools. They were not selected patients but consisted of children whom I was able to follow consistently, who were not operated on and who attended fairly regularly. Their average age was 8½ years. There were twenty-two boys and thirty-two girls. The extent of paralysis varied. Ten patients had one upper extremity involved, two both upper extremities, twenty-seven one lower extremity, seven both lower extremities and seventeen the muscles of the trunk.

The first muscle chart that was used was made at least two months after the onset and therefore the initial spontaneous recovery was not included. The grading of muscles was done about every two months the first year and about every four months after that and as far as possible by the same technician.

In the calculation of the percentage of recovery, total paralysis was called zero and normal muscle 100. Any improvement from one grade to the nearest higher grade was therefore 20 per cent, and from zero to 100, or from total paralysis to normal, was 100 per cent. On the muscle-testing chart used nineteen muscles are listed in the lower extremity. Each muscle was tested, and the sum of the percentage of recovery of all involved muscles was divided by the number of muscles affected, which gave a percentage of recovery for the whole extremity. The upper extremities and trunk muscles were graded in a similar manner. Thus the sum of percentage of recovery was obtained which, when divided by the number of muscles involved, gave the percentage of recovery of the patient.

When this kind of calculation was applied in the twenty-six cases in which treatment was begun within six months of the acute onset, the actual muscle improvement taken as a whole was 29.07 per cent, and in twenty-eight cases in which treatment was begun six or more months after the onset the corresponding figure was 16.39 per cent. A comparison of the recovery of the various muscles shows that in the lower extremities the gluteus maximus, gluteus medius and dorsal flexors of the toes showed the greatest recovery and the tibialis anticus and posticus showed the least recovery. In the upper extremities the biceps showed a recovery of 80 per cent and the triceps the lowest recovery, or 29.5 per cent.

These figures correspond very closely to those of Harry. He made the statement that from four to six months after the acute onset one can determine the ultimate recovery, i. e. at six months it is possible to predict the ultimate extent of recovery. The majority of muscles which after six months were capable of moving the part, i. e. showed good, fair or poor function, developed useful contraction, while most of those that were not failed to recover. My figures corroborate this statement, and I think that it is of considerable prognostic value.

TABLE 4.—*Distribution of Paralysis*

Extremity	My Series, %	Harry's Series, %
One upper extremity	19	6
Both upper extremities	4	6
One lower extremity	50	8
Both lower extremities	12	18
Both upper and lower extremities	15	18

Harry's thirty-six patients were treated with rest in plaster during the acute stage and as soon as muscular tenderness had disappeared received heat, massage, electrical stimulation and muscle reeducation. My fifty-four patients also were treated with rest in plaster; about half of them were admitted for treatment when muscle soreness had disappeared and the other half about six months after the acute onset. The improvement in those admitted early was about twice that of

those admitted late. The treatment consisted solely of muscle reeducation exercises in the therapeutic pool. The distribution of paralysis is shown in table 4.

CONCLUSION

Ever since underwater exercises became popular about ten years ago, I have endeavored to compare the results thus obtained with the results that can be obtained in a dry gymnasium. I have often been asked by skeptical physicians if I had any concrete evidence of better results with underwater treatment than with other forms of treatment. I believe the comparison between my figures and those of Harry gives the answer: There is very little difference in percentage of muscle recovery.

I believe that the present consensus as to the aftercare of patients with poliomyelitis is better protection of the weakened muscles and less indiscriminate activity. I should not be surprised to see the return of electrical stimulation to the weakened muscles, making the treatment of poliomyelitis similar to the care of traumatic peripheral nerve lesions.

What is then the advantage of underwater exercises? Should one continue to build more or less expensive therapeutic pools? The answer to these two questions is as follows:

1. The temperature of the pools ranges from 85 to 92 F., and thereby the application of heat, so necessary for the circulatory deficiency, is taken care of. Moist heat is better than dry heat, and the even distribution of heat through the contact of water is ideal. The heat will relax the muscles antagonistic to the weakened muscle group and thus prevent stretching of the paralyzed fibers.

2. The water obliterates the effect of gravity and keeps the weight of an extremity from overstretching the weakened muscle. The motion of the extremity through the water probably produces the best form of massage; manual application of massage may do much harm by excessive pressure on the capillary stasis.

3. The exercises can be performed with just as much care under water as on a table. With the gravity eliminated one has the same resistance to movements in all directions. The physician owes a great deal to the Kendalls for having recalled to him the importance of protection during and after exercises. Such protection can be observed in underwater exercises as well as in exercises out of the water. When the time for walking comes, this can be started more easily in the pool, even when crutches and braces are necessary.

4. Nothing can replace the therapeutic pool for the security that the patient feels when supported by the water. One is dealing with physically handicapped children who are very apprehensive of falling and doing harm to themselves. This fear is entirely eliminated in the water, and their morale, which is often low after a long illness, is boosted enormously. The pleasures of crippled children are few, and they look forward to their pool treatment with a great deal of interest and joy. The treatment in the dry gymnasium is monotonous and uninteresting, and I often use it as a punishment when the children do not behave themselves in the pool. Nothing explains better the psychologic effect of the underwater exercises than the plaque which was placed on the wall of the pool at the Hospital for the Ruptured and Crippled. It says "This pool is given to the physically handicapped children that in pleasure they may regain their health."

321 East Forty-Second Street.

Clinical Notes, Suggestions and New Instruments

THE REMOVAL OF FOREIGN BODIES: A MODIFIED INCISION

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The removal of foreign bodies such as needles, thorns and splinters which break off under the dermis at nearly right angles to the surface of the skin is sometimes complicated by difficulty in locating the object. This difficulty is due to the normal mobility of the underlying fat in which the foreign body is embedded and is made greater by the increased mobility of the fat when the incision is extended into it. As a result, the incision passes to one side of the foreign body so that the search must be extended into the walls of the incision instead

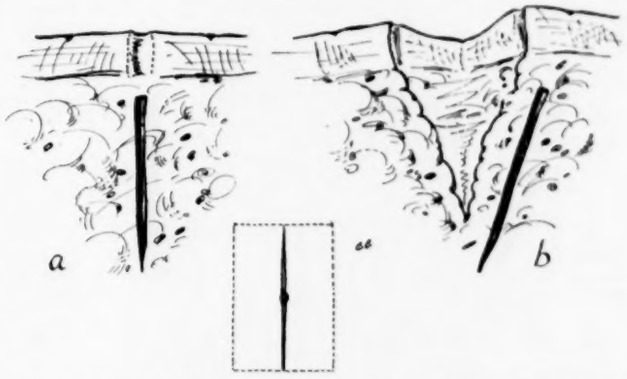

Fig. 1.—Usual incision: (*a*) foreign body in fat in normal relation to puncture wound; (*b*) displacement of foreign body to one side after usual incision.

of immediately beneath the cutaneous puncture where the object of the search should lie. Thus an incision into the fat immediately distorts the relationship between the puncture wound and the foreign body (fig. 1). Furthermore, in such mobile fat the exploring forceps may merely push the object ahead of them and displace it further. Under the fluoroscope foreign bodies that are opaque to x-rays have been seen to move ahead of the exploring forceps for a remarkable distance.

The fluoroscopic observation of the change of position of the foreign body due to this mobility of the embedding tissue has

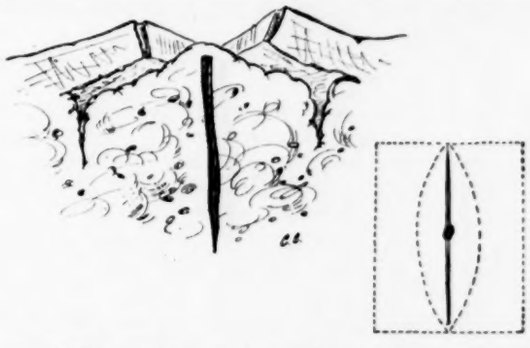

Fig. 2.—Modified incision showing undercut edges of skin and displacement of foreign body into the wound. Inset shows relation of incision to puncture wound, the dotted lines representing undercut area.

led my associates and me to modify our incision in order to utilize this fat mobility to our advantage.

The modified incision extends only through the skin and is of sufficient length to permit the underlying fat to be cut away from the under surface of the dermis for a distance of one-fourth inch or more, the distance depending on the depth at which the foreign body lies. This undercutting is done immediately after the incision is made, care being taken not to incise the fat. The wound is then separated with the fingers and at the same time moderate downward pressure is exerted.

From the Rees-Stealy Clinic.

This maneuver causes the underlying fat to be extruded through the incision, carrying with it the foreign body, which then may often be lifted out without further manipulation (fig. 2).

In cases in which it is suspected that the foreign body is in contact with the under surface of the skin or when the puncture wound is obviously contaminated, an elliptic incision is made with the puncture wound as its center. The outer margins are undercut as before, and the underlying fat is displaced into the wound; when the ellipse of skin is removed, the foreign body can be easily located (fig. 3).

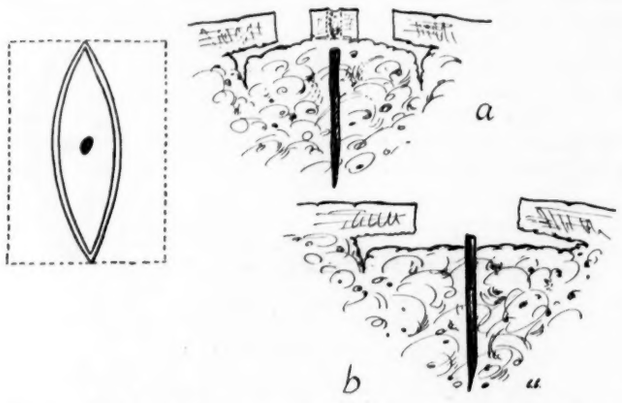

Fig. 3.—Elliptic incision for use in contaminated puncture wounds or in cases in which foreign body is in contact with skin: (*a*) relationship of incision to puncture wound with undercutting of margins; (*b*) after removal of central cutaneous area. Inset shows relationship of ellipse to puncture wound.

The use of this incision for the removal of foreign bodies makes it particularly important that certain precautionary measures be observed. The knife with which the incision is made should be very sharp, so that the depth of the incision may be controlled accurately; injection of the local anesthetic should be around and not into the area, in order that an increase of the bulk of tissue at the site of dissection may be avoided; and palpation for location of the object should be gentle so that the object is not displaced by it. If the foreign body is of an opaque nature a two way roentgenogram should be taken and a small marker placed at the point of puncture.

2001 Fourth Avenue.

RETROPERITONEAL RUPTURE OF A DUODENAL ULCER

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GREENSBORO, N. C.

This case is of unusual interest (1) because of the diagnostic problem that presented itself and (2) because of the direction in which the gastroduodenal fluid drained. In a review of the literature no reference to a spontaneous rupture of a duodenal ulcer draining retroperitoneally could be found.

History.—A white man aged 39 of average height and rather thin, a clothing salesman, returned home one evening complaining of severe headache, pains radiating through the trapezius area and generalized aching with particular reference to the back. Thinking that he was suffering from influenza, he took a dose of castor oil about 10 p. m. Sleep overtook him until 5 a. m., at which time the bowels became obstreperous, watery elimination requiring attention on four occasions until 11 a. m. The last of these movements was dark but not black, according to the patient. He also stated that the entire abdomen became quite sore but reported no localizing pain. He drank liberally of fruit juices until about 4 p. m., at which time he vomited some orange juice. He then consented to call a physician (W. L. P.). This was twenty-four hours after the onset of the present illness. At this time his only complaint was soreness over the entire abdomen and aching in the right flank. The patient's past history was pertinent in that he referred to having had an ulcerated stomach some eight to ten years previously, though x-ray examination four and one-half years before the present illness revealed no evidence of ulcer. Since that time he had been singularly free from symptoms referable to the stomach, despite eating a general diet and not infrequently imbibing whisky rather too freely on week ends.

Examination.—Symptoms and signs were centered about the abdomen and lumbar region. There was generalized tenderness over the entire abdomen, more marked in the lower quadrants and referred to both flanks (more marked on the right). The abdomen was soft with no spasm or rigidity. Tenderness was referred mostly to the right flank. The temperature was 99 F., the pulse rate 80, the respiratory rate 22. The impression recorded was intestinal influenza. Routine treatment for influenza was advised, i. e. an acetylsalicylic acid compound by mouth and a mustard plaster to the right flank. This night he was unable to retain the acetylsalicylic acid compound or any fruit juices or other liquids. One of us (W. L. P.) saw him the next morning and found him sitting up in a chair in what he considered his most comfortable position.

In view of the complexity and gravity of the patient's condition, Dr. LeBauer was called in consultation. At this time the patient appeared extremely toxic, with beads of perspiration on his forehead and an anxious expression. He had great difficulty in assuming the erect position. He walked in a flexed position, evidently splinting his right side. He was obviously in a great deal of pain. In bed he lay with his right leg flexed. General physical examination revealed that he was acutely ill. His skin was pale and covered with perspiration, his face drawn and his expression anxious (which in retrospect fitted exactly Dr. Moynihan's classic description of perforated ulcer). There was slight congestion of the nasal mucous membranes, and respirations were shallow with occasional sonorous and sibilant rales suggestive of an old chronic bronchitis. The respiratory rate was 30. The heart sounds were of good quality with no murmurs or arrhythmia and with a rate of 90. The abdomen was not distended but was somewhat scaphoid, with no visible peristalsis. There were marked spasm and rigidity over the entire right side of the abdomen, most pronounced in the right lower quadrant. Tenderness was so exquisite that the weight of the examiner's hand could not be borne. This tenderness extended back to the right flank, where there was questionable fulness. The temperature was 99 F.

A diagnosis of acute appendicitis with perforation was made. Only after much persuasion did the patient finally submit to hospitalization. On admission white blood cells numbered 19,000. The urine showed a faint trace of albumin with numerous hyaline casts and a few pus cells.

After routine preparations the patient was removed to the operating room, where under a general anesthetic a right McBurney incision was made; when the muscles beneath the fascia of the external oblique were separated, before the peritoneal cavity was entered, a large amount of thin flaky almost black watery fluid poured out (old blood?). The finger could be inserted into the retroperitoneal space as far as one could reach upward toward the kidney and posteromesially toward the vertebral column. The exposed muscle tissue appeared livid and greenish. The retroperitoneal space was packed with gauze to permit entrance into the peritoneal cavity. On exposure of the peritoneal cavity no free fluid was in evidence. The appendix was retrocecal but was lying free in the right gutter. It was delivered with comparative ease though slightly swollen throughout the distal half; its serous coat seemed definitely congested and the vessels were injected. It was removed in the usual fashion and the peritoneum closed. Two cigaret drains were inserted into the retroperitoneal space. The muscles, fascia and skin were loosely closed in the usual fashion.

The patient took the anesthetic poorly; his breathing was shallow and his pulse rapid and weak. As he was being removed from the operating table he vomited a large amount of light brownish flaky fluid (old blood?). Saline solution with 5 per cent dextrose was given intravenously at once and he responded very well. In less than an hour his dressing was saturated with the dark chocolate drainage material. About five hours after the operation about 8 ounces (240 cc.) of coffee

colored material was vomited. Profuse drainage continued, the dressing becoming saturated about every three hours.

On the second postoperative day the abdomen was soft; tenderness had disappeared and peristalsis was heard. Drainage continued unabated, its odor becoming foul; the abdomen appeared soft with tenderness confined to the right flank posteriorly. The rectal temperature ranged from 101 to 103 F., with the pulse rate from 80 to 90.

On the third postoperative day the patient reported that he was feeling well and craved liquids. One ounce (30 cc.) of water an hour was allowed; an enema was given which returned brownish green. Increasing amounts of water were permitted up to 3 ounces every hour. After water had been taken by mouth for approximately sixty hours the patient became nauseated and vomited copious amounts of a thin brown flaky fluid which gave a positive benzidine reaction. After this all fluids were administered parenterally, up to 3,000 cc. being given daily. Transfusions were given on alternate days. The drainage continued to be profuse and foul, and on the seventh postoperative day it appeared reddish at times. At this time a 5 grain (0.3 Gm.) tablet of methylene blue was given by mouth. The drainage material was stained blue within an hour, indicating a gastrointestinal fistula. The patient's condition grew worse and death occurred on the tenth postoperative day.

Autopsy.—This was performed by Dr. Maurice LeBauer. The abdomen was flat. There was some feeling of fluctuation in the right loin beneath the muscle layers. A McBurney incision of recent origin was open with separation of the skin edges for its entire length and separation of muscle layers down to the peritoneum. From the wound a quantity of thin chocolate fluid estimated to be between 300 and 500 cc. was evacuated. By slipping the fingers into the wound beneath the muscle layers a separation of those layers from the peritoneum was found to extend upward toward the kidney region and beyond toward the midline in the retroperitoneal space. An incision to expose the contents of the peritoneal cavity was made. The omentum was adherent to the ascending colon for the proximal two thirds of its length on its lateral aspect, with fixation of the colon and attached omentum to the anterolateral parietal peritoneum. At the site of the adhesions the peritoneum of the abdominal wall, colon and omentum was discolored with blackish green pigment. The adhesions separated readily, but when the colon was pulled away from the lateral wall a rent was found in the parietal peritoneum, a communication thus being made between the peritoneal cavity and the retroperitoneal space, which was well sealed off from the peritoneal cavity by the adhesions described. In the region of the head of the cecum some omentum was adherent to the base of the recently removed appendix. A small abscess was located around the base of the appendix. A loop of terminal ileum contained some bloody fluid.

The rest of the omentum was neatly spread out as a curtain for the small intestine. There was no evidence of free peritoneal fluid or generalized peritonitis. On following the ascending colon up to the hepatic flexure, one encountered a mass of adhesions and inflammatory tissue. The hepatic flexure and the proximal portion of the transverse colon were adherent to the under surface of the liver. When it was stripped away the gallbladder was found surrounded by fresh adhesions connecting it to the duodenum. The gallbladder otherwise was normal.

The dissection was carried up along the lateral gutter on the right side, lifting the ascending colon, hepatic flexure and proximal transverse colon up from its attachment to the posterior abdominal wall. All the retroperitoneal space in the right half of the abdomen down to the level of the cecal head and mesially over the iliac vessels was dissected up by the bloody chocolate fluid. When the duodenum was exposed a perforation was found the size of a 5 cent piece (21 mm.) with sharp smooth edges and the mucosa rolled out into the opening. This perforation was later determined to be in the cap of the duodenum in its posterolateral aspect. The edges of the perforation were soft and sharply demarcated, and no surrounding border of scar tissue was found. The perforation opened retroperitoneally, probably as the result of adhesions to the posterior parietal peritoneum, in the supramesocolic compartment, as evidenced by some leakage into the subhepatic region intraperitoneally. After removal of the duodenum and stomach it was found that the head of the pancreas formed part of the inflammatory mass at the site of the perforation and that the perforation lay about 0.5 cm. beyond the pyloric ring, extending for a distance of 2 cm. down the duodenum, which represented the diameter of the ringlike perforation.

COMMENTS

On the basis of the history and physical and laboratory examinations this case was interpreted as acute appendicitis, and the necessary surgical procedure for this type of lesion was done.

The first suggestion that everything was not as anticipated was encountered when the operator (W. L. P.) found a large amount of dark sanguineous fluid beneath the fascia of the right external oblique muscle. This was lightly regarded, however,

Autopsy specimen showing site of perforation in posterolateral aspect of duodenal cap 0.5 cm. beyond the pyloric ring.

in view of what was on gross examination considered a rather acutely inflamed appendix and in view of the absence of free fluid in the peritoneal cavity. It was felt that the patient's condition precluded further exploration.

Several times during the postoperative course we considered an exploratory operation, only to be discouraged by the condition of the patient. It became quite obvious that the appendix was not the whole story.

In a review of the literature no case of spontaneous rupture of a duodenal ulcer draining entirely retroperitoneally has been found. Eusterman and Balfour [1] in their monograph report three cases at the Mayo Clinic, all traumatic with 100 per cent mortality; Leibowicz [2] collected 176 cases, all traumatic.

Eusterman and Balfour report in cases of injury to the duodenum that when the rupture is confined to the retroperitoneal portion of the duodenum, which occurs in a third of

1. Eusterman, G. B., and Balfour, D. C.: The Stomach and Duodenum, Philadelphia, W. B. Saunders Company, 1935, p. 414.
2. Leibowicz, M.: Subkutane Zwöffingerdamuerletzung, Zentralbl. f. Chir. **57**: 1278-1283 (May 24) 1930.

the cases, the symptoms are comparable to those of ruptures of an ulcer into the lesser peritoneal cavity in that they may be so tardy or so mild and gradual in onset and progression that the gravity of the condition is not apparent. As Knaggs [3] has said, even the most experienced surgeon has great difficulty in coming to an early conclusion that the abdomen ought to be opened. There is no communication with the free peritoneal cavity, so that tangible symptoms and signs of peritoneal irritation and inflammation are absent.

Eusterman and Balfour [1] report a case of traumatic injury to the right abdominal quadrant, following a kick by a horse, which simulated in many details the case that we are reporting: "extensive hematoma on the mesentery of appendix, cecum and entire ascending colon, but the bowel was of good color. No further surgical procedure appeared indicated except removal of the appendix." On the tenth postoperative day, jejunostomy was done for a duodenal fistula. The patient died several days later. Postmortem examination revealed traumatic rupture of the second part of the duodenum.

Eusterman and Balfour report that "occasional cases of rupture of the duodenum in which the patients have recovered have been reported in the literature. None of the patients who have been operated on for this condition at the clinic have recovered."

ANDROGENS AND THE "COLORING" OF WOMEN

E. C. HAMBLEN, M.D., AND W. KENNETH CUYLER, M.S.
DURHAM, N. C.

Dermatologic alterations are common in endocrine disease. Acne of adolescence and the hyperpigmentations of pregnancy are supposed to result from physiologic changes in the functions of the glands of internal secretion. Hamilton [1] and his group [2] have described characteristic alterations in the texture and pigmentation of the skin of surgically castrated and hypogonadal males following treatment with testosterone propionate. Hamilton and Hubert [3] have related these pigmentational alterations to a "developing" action of the androgens on relatively colorless material laid down in the skin as the result of exposure.

In view of this apparent role of androgens in "developing" melanin, our observations on the urinary titers of androgens in normal white women seem significant when their "complexions" are considered. The average daily androgenic titers of true blondes have been found to be distinctly lower than those of marked brunettes.

Observations on Five Women

	Number of 24 Hour Specimens Titrated	Average Daily Titer Expressed in International Units of Androsterone
Patient 1, blonde	19	14
Patient 2, moderate blonde	34	15
Patient 3, moderate brunette, fair skin	36	21
Patient 4, moderate brunette, fair skin	16	22
Patient 5, marked brunette, dark skin	38	34

Employing a colorimetric method for the determination of urinary androgens described by Oesting,[4] we secured data on five healthy white women, whose menstrual histories were normal, as shown in the accompanying table.

Similar correlations between the "complexion" and urinary titers of androgens have been observed by one of us (W. K. C.) in a much larger series of patients on each of whom a single specimen or at most several specimens were titrated for androgens by methods of bio-assay.

It is suggested that androgens may play an important role in the "coloring" of women and that individual variations in the degree of pigmentary alterations during pregnancy may be related also to characteristic differences in the metabolism of these sterols. Further studies may confirm these associations.

3. Knaggs, R. L.: Retroperitoneal Rupture of Duodenum, Proc. Roy. Soc. Med. (Surg. Sect.) **6**: 243-266, 1912-1913.

From the Endocrine Division, Department of Obstetrics and Gynecology, Duke University School of Medicine and Hospital.

1. Hamilton, J. B.: Treatment of Sexual Underdevelopment with Synthetic Male Hormone Substance, Endocrinology **21**: 649-654 (Sept.) 1937.

2. Miller, N. E.; Hubert, Gilbert, and Hamilton, J. B.: Mental and Behavioral Changes Following Male Hormone Treatment of Adult Castration, Hypogonadism and Psychic Impotence, Proc. Soc. Exper. Biol. & Med. **38**: 538-540 (May) 1938.

3. Hamilton, J. B., and Hubert, Gilbert: Photographic Nature of Tanning of Human Skin as Shown by Studies of Male Hormone Therapy, Science **88**: 481 (Nov. 18) 1938.

4. Oesting, R. B.: A Colorimetric Assay for Male Sex Hormones in Urine, Proc. Soc. Exper. Biol. & Med. **36**: 524-526 (May) 1937.

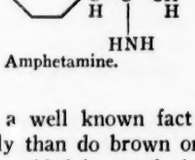
DILATION OF THE PUPIL FOR OPHTHALMOSCOPIC EXAMINATION

LEO L. MAYER, M.D., CHICAGO

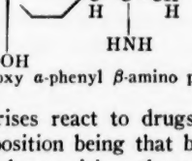
An ideal medicament to dilate the pupil in order to acquire knowledge of the optic nerve, the retina and the vessels has long been sought. Its characteristics would include comfort in application to the conjunctiva, rapid and complete dilatation of the pupil, absence of effect on accommodation, general toxic effects and tendency to increase the intra-ocular tension, and finally an action persisting not more than one or two hours. Using such a drug, the physician could readily examine the fundi without taking a long time and without inconveniencing the patient and could feel entirely satisfied as to any ultimate consequences.

After the isolation of epinephrine in 1901 [1] and the realization of the activities of this substance, numerous attempts were made at its synthesis. Also interest grew in the possible value of compounds presenting similar basic structures, and in 1909 Barger and Dale [2] reported on a group of amines structurally related to epinephrine (3,4-dihydroxy α-phenyl β-methylamino ethanol). It was discovered that solutions of the salts of α-phenyl β-amino propane (amphetamine) had a vasoconstrictive potency equal to or greater than that of ephedrine (α-phenyl β-methylamino propanol).

I felt at that time that amphetamine sulfate might be the long sought ideal mydriatic, and studies made, to be detailed later, gave some promise. Later a related substance (4,hydroxy α-phenyl β-amino propane hydrobromide) was supplied.[3] The close structural relationship of these two chemicals is shown by their formulas:



Amphetamine.



4,hydroxy α-phenyl β-amino propane.

It is a well known fact that blue irises react to drugs more rapidly than do brown ones, the supposition being that because of the added layer of pigment in the brown irises the solution takes longer to reach the nerve endings and in addition the actual weight of the pigment makes the process slower.

The drugs commonly used to obtain mydriasis have been atropine sulfate, homatropine hydrobromide, scopolamine hydrobromide, cocaine, epinephrine, ephedrine, duboisine sulfate and eucatropine, all of which have some objectionable feature.

Atropine sulfate acts slowly and causes marked paralysis of accommodation, and its effect persists from ten days to two weeks.

Homatropine hydrobromide, scopolamine hydrobromide and duboisine sulfate, closely related to atropine, act similarly but are not so powerful.

Cocaine does not cause maximum dilatation and softens the corneal epithelium.

1. Takamine, Jokichi: Adrenalin, the Active Principle of the Suprarenal Glands, and Its Mode of Preparation, Am. J. Pharm. **73**: 523, 1901.

2. Barger, G., and Dale, H. H.: Chemical Structure and Sympathomimetic Action of Amines, J. Physiol. **41**: 19, 1909.

3. Both the amphetamine sulfate and the 4,hydroxy α-phenyl β-amino propane hydrobromide solutions were supplied by the Smith, Kline and French Laboratories of Philadelphia.

Epinephrine and ephedrine act only in highly concentrated solution; their action is slow and persists for some days.

Eucatropine in a 2 per cent solution has been the best and most used for mydriatic purposes only. It causes dilatation in from forty-five to seventy-five minutes and produces partial paralysis of accommodation, and the pupil returns to normal in from four to eight hours.

This report concerns a comparison of the following solutions: (*a*) 2 per cent eucatropine, (*b*) 1 per cent aqueous (tear isotonic) amphetamine sulfate with 2.05 per cent boric acid, (*c*) 1 per cent aqueous (tear isotonic) 4,hydroxy α-phenyl β-amino propane hydrobromide with 3 per cent boric acid and (*d*) 3 per cent aqueous 4,hydroxy α-phenyl β-amino propane hydrobromide with 3 per cent boric acid.

Tests were conducted on patients in medical wards of Michael Reese Hospital and, through the courtesy of Dr. Theodore T. Stone, on patients in the neurologic ward of Cook County Hospital. Patients were selected as to age and the color of their irises. All were between 25 and 45 and the irises were either completely blue or dark brown. The size of the resting pupil was measured with a pupillometer without artificial illumination before instillation of the drug into the conjunctival sac and at various times afterward to the point of complete return to the original size.

It was ascertained that both pupils of each patient reacted normally and that no disease of the irises had been present, and the comparison was made by using one solution in each conjunctival sac. The four solutions were compared with one another. A summary of the results is given in the accompanying table.

A subjective test of ability to accommodate was made on all patients at various periods while the drugs were acting. The eucatropine solution caused blurring of close vision and inability to read readily for about three hours on an average. The other solutions caused no loss in accommodative effort. There was no rise in intra-ocular tension in any of the eyes examined. None of the solutions caused marked discomfort when introduced into the conjunctival sac; however, the stock solution of 2 per cent eucatropine frequently occasioned the complaint of a mild burning sensation. No general or local toxic effects were produced. This solution caused a persistence of the pupillary dilatation which averaged five and one half hours, while the periods for the other solutions were as follows: 1 per cent amphetamine sulfate one and one half hours, 1 per cent 4,hydroxy α-phenyl β-amino propane hydrobromide two hours and 3 per cent 4,hydroxy α-phenyl β-amino propane hydrobromide two and one half hours.

As a corollary experiment, with selected patients an attempt was made to cause the pupil to return to normal size by the use of antagonistic drugs. Those used were a 0.5 per cent solution of physostigmine sulfate and a 1 per cent solution of pilocarpine nitrate. They were instilled immediately after the maximal dilatation had been reached. The physostigmine sulfate caused a rapid return to normal in all cases, and the contraction even went further. The miosis and ciliary spasm produced were much more of a discomfort than the dilatation of the pupil. The 1 per cent pilocarpine nitrate shortened the period of return to normal from dilatation caused by eucatropine from six to five hours. With the three other solutions the counteraction of the pilocarpine produced a normal pupillary size in one hour. However, when the pupils had been dilated with a 1 per cent solution of amphetamine sulfate or a 1 per cent solution of 4,hydroxy α-phenyl β-amino propane hydrobromide, the action of the pilocarpine continued, causing slight miosis, ciliary spasm and some blur for distance vision. When the 3 per cent solution of 4,hydroxy α-phenyl β-amino propane hydrobromide had been used, however, the pupil returned promptly to normal and remained so.

Average Time for Complete Dilatation

Solution	Blue Iris	Brown Iris
2 per cent eucatropine	46 minutes	72 minutes
1 per cent amphetamine sulfate..	66 minutes	102 minutes
1 per cent 4,hydroxy α-phenyl β-amino propane hydrobromide	44 minutes	68 minutes
3 per cent 4,hydroxy α-phenyl β-amino propane hydrobromide	25 minutes	28 minutes

It may be concluded that, while a 3 per cent aqueous solution of 4,hydroxy α-phenyl β-amino propane hydrobromide does not fill all the requirements of an ideal mydriatic for ophthalmoscopic examination, it approaches them most nearly of all available drugs.

No discomfort is caused by 4,hydroxy α-phenyl β-amino propane hydrobromide, the dilatation is rapid and complete, and there are no general toxic effects. Accommodation is not perturbed, the intra-ocular tension is not changed and, finally, the dilatation is readily controlled.

In this investigation no correlation was attempted in the question of synergism for cycloplegia.[4]

104 South Michigan Avenue.

Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORTS. HOWARD A. CARTER, Secretary.

THE BURDICK RHYTHMIC CONSTRICTOR APPARATUS ACCEPTABLE

Manufacturer: The Burdick Corporation, Milton, Wis.

The Burdick Rhythmic Constrictor is designed for the treatment of peripheral vascular diseases of the extremities by intermittent venous occlusion. It supplies compressed air alternately at predetermined time intervals to one or two pneumatic cuffs applied to the proximal part of the extremity under treatment. The unit is portable, weighs 20 pounds, is designed to operate on 50 to 60 cycles alternating current at 115 volts, and consumes 32 watts of current. An induction disk type, slow speed motor supplies the motive power and is directly connected to a small double-acting piston pump. This motor is noiseless and automatically adjusts its speed to the amount of pressure in the cuff.

The Burdick Rhythmic Constrictor Apparatus.

On the panel is mounted a selective timing device operated by a synchronous motor which automatically starts and stops the pump and deflates the cuff for predetermined periods. Six different periods of constriction and relaxation may be selected. A pressure regulator of a diaphragm type is also mounted on the panel by which the amount of pressure in the cuff can be regulated from 0 to 120 mm. of mercury and preset before the cuff is attached to the machine. A manometer on the panel registers the amount of pressure in the cuff in millimeters of mercury.

The cuffs are made of rubber and may be washed and sterilized. The pneumatic cuff for the leg is conical to fit the taper of the average thigh. Straight cuffs are also available for the arms. Valves to the air pump are automatically opened when cuffs are attached to the unit.

This unit is said by the firm to be indicated in frost bite, vascular diseases with major involvement of the large blood vessels, acute vascular occlusion and early thrombo-angiitis obliterans without extreme capillary stasis. Contraindications are given as thrombophlebitis, cellulitis, lymphangitis (acute or

4. Myerson, Abraham, and Thau, William: Human Autonomic Pharmacology: Effect of Cholinergic and Adrenergic Drugs on the Eye, Arch. Ophth. **18**: 78 (July) 1937. Beach, S. J., and McAdams, W. R.: Benzedrine in Cycloplegia: Further Report, Am. J. Ophth. **21**: 121 (Feb.) 1938. Powell, L. S., and Hyde, M. E.: Effects of Benzedrine Sulfate Solution on Cycloplegia: Preliminary Report, J. Kansas M. Soc. **39**: 1 (Jan.) 1938; Action of Eserine Administration During Homatropine-Benzedrine Cycloplegia, ibid. **39**: 57 (Feb.) 1938. Abbott, W. O., and Henry, C. M.: Paredrine (β-4-Hydroxyphenylisopropylamine): Clinical Investigation of Sympathomimetic Drug, Am. J. M. Sc. **193**: 661 (May) 1937. Tassman, I. S.: The Use of Paredrine in Cycloplegia, Am. J. Ophth. **21**: 1019 (Sept.) 1938.

subacute), advanced thrombo-angiitis obliterans with capillary stasis, venous thrombosis and extensive destruction of the arteriolar or capillary vessels. The theory is that during venous constriction the venocapillary bed is filled and stretched, and when the constriction is relaxed a reactive hyperemia with vasodilatation occurs. This alternate constriction and release tends to increase the arterial flow in peripheral circulation during the release period.

The following effects are produced in organic peripheral vascular obstruction; (*a*) increase in blood supply, (*b*) relief of pain, (*c*) increase in skin temperature.

The firm submitted clinical evidence to show that the unit may be of value in the treatment of peripheral obliterative vascular disorders, arteriosclerosis and ulcers or lesions resulting from vascular diseases.

The unit was used clinically by a qualified physician on behalf of the Council and he reported that it functioned as well as similar apparatus already accepted by the Council.

In view of the foregoing report, the Council on Physical Therapy voted to accept the Burdick Rhythmic Constrictor for inclusion in its list of accepted devices.

FANGO di BATTAGLIA NOT ACCEPTABLE

Manufacturer: Fango Corporation of America, 239 East Forty-Seventh Street, New York.

Fango di Battaglia, as the name implies, is a mud from Battaglia, Italy, which is recommended for therapeutic use when applied in the form of mud packs. It is taken from the bottom of lakes fed by hot springs and is stated to be volcanic in origin. Dark gray, it is claimed to be free from gritty particles, roots and wood fiber, and consequently soft to the skin. Because of its volcanic origin, it contains more mineral than organic matter. The firm submits the following analysis of its chemical contents:

When the mud is dried, 49 per cent of water is lost, leaving behind 51 per cent of dry substance with a light gray appearance, which is very easily friable into an extremely fine powder. An analysis of this powder gives the following result:

	Per Cent
Water	3.64
Organic substances (including 1.92 per cent of humid substance and 0.28 per cent extractive by alcohol)	6.43
Inorganic substances	89.93
	100.00

Of the latter, 42 per cent were dissolved by hydrochloric acid while 47.79 per cent were found to be insoluble.

The former consisted of:

	Per Cent
Carbon dioxide	11.75
Trioxide of sulfur	0.65
Siliceous earth	8.01
Phosphoric acid	0.21
Calcium oxide	12.04
Magnesium oxide	1.46
Oxide of iron	6.34
Oxide of aluminum	1.07
Oxide of potassium	0.23
Oxide of sodium	0.28
Manganese, sulfurated hydrogen, and volatile sebacic acid traces	
	42.05

The firm claims that Fango is therapeutically effective because of its physical, chemical and radioactive properties. It is claimed to have beneficial effects on the skin, circulatory system, nervous system, metabolism, sweat glands and respiratory system. To support such claims, the firm submitted a bibliography of approximately 150 articles with brief abstracts for each.

When the submitted Fango was received, it was referred for investigation to a qualified physician. His report as adopted by the Council follows:

The object of these experiments was to evaluate the therapeutic possibilities of Fango di Battaglia and its advantages, if any, over other easily obtained, inexpensive and comparable topical applications. With this thought in mind, Fango was evaluated against Minnesota clay, common garden earth, paraffin, and paraffin and mineral oil.

The exploited factors of radioactivity and chemical make-up that would make Fango superior to other applications may be considered and discarded. The amount of radioactivity or emanation given off by this mud is practically negligible, as was easily proved by its inability to record on bromide photographic paper.

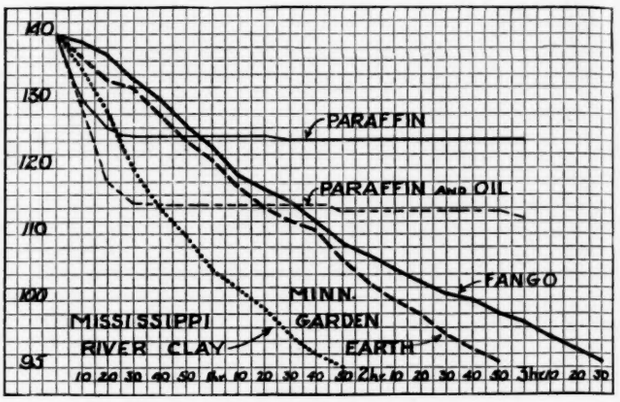


Chart 1.—Results of tests in small container.

Common knowledge of the physiology of the skin reveals that the various chemical substances in the mud will not be absorbed through the skin and cannot be expected to have any influence as a healing agent.

Thus it is possible to disregard the therapeutic effects of Fango's radioactivity and chemical constitution as healing agents in themselves. However, the mud's ability to retain heat is quite important therapeutically and bears closer study.

To test this heat-retaining property, the Fango was mixed with water (1 quart water to 3 pounds mud as outlined on direction sheet accompanying the product) and the mass placed in a double boiler and heated until it had an even temperature of 140 F. throughout. The inset container was then removed and set in a room of approximately 74 F. A thermometer was inserted and fixed so that its bulb was in the center of the mass. Readings were then made every ten minutes without disturbing the thermometers. The other substances used were treated in exactly the same manner. The results of the tests are seen in chart 1.

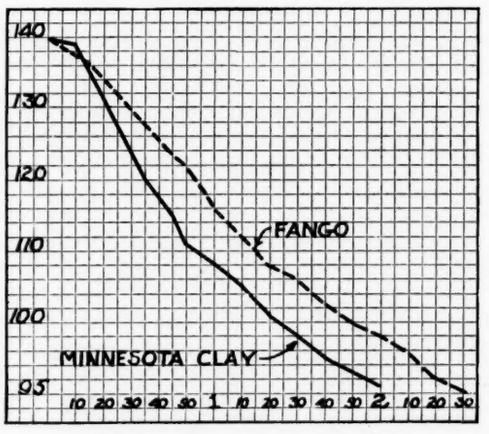


Chart 2.—Results of tests in large container.

Chart 2 shows the results of a similar experiment, except that a larger container was used. This container permitted a larger cooling surface for the mud with a depth of about 2 inches, thus approaching the conditions existing in a therapeutic application, as over a human thigh.

It will be seen in chart 1 that Fango dropped from 120 to 100 F. (which may be considered the approximate limits of the therapeutic range) in ninety-five minutes. Garden earth closely

paralleled this drop in seventy minutes. Mississippi valley clay fell in fifty minutes. Paraffin and paraffin mineral oil dropped to 125 F. and 115 F. respectively and then maintained that temperature for the next two and one-half hours. This was due, of course, to surface solidification, which effectively insulated the center of the mass. Minnesota clay (sample from the Mississippi Valley also) and Fango were then treated as before except that a larger container was used. The rate of temperature drop was almost identical—the Fango in fifty-five minutes and the clay in fifty minutes (chart 2).

Application of the mud (Fango) was then made over a human thigh. A bulb thermometer was fastened to the surface of the skin over the midanterior aspect of the thigh by adhesive tape. The external portion of the bulb (that is, away from the skin contact) was shielded from direct contact with the mud by several layers of adhesive tape. The mud was then applied over the thigh to a depth of about 1½ inches and covered by a rubberized sheet and several thicknesses of blanket. The calibrated end of the thermometer projected sufficiently to enable temperature reading without disturbing this application.

At the first application the mud was applied at 106 F. (limited to this height by subjective sensation). At the second application, the subject could tolerate 110 F. nicely.

Paraffin was used as a test control because it is an accepted method of applying topical heat in a routine test. It also proved

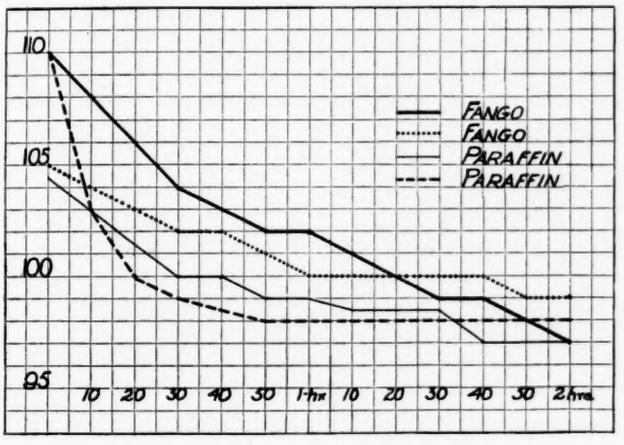


Chart 3.—Results of tests with Fango and paraffin.

itself an efficient heat insulator in the preceding experiment. The paraffin, unfortunately, could not be applied to a thick layer quickly, as could the mud. If the distal portion of an extremity had been used and the hand or foot dipped rapidly until a thick layer of wax had been built up, paraffin might have shown up to better advantage.

Chart 3 shows that Fango can be used to induce heat in a circumscribed area of body surface for a limited period of time if carefully surrounded by rubberized sheet and blanket.

It is not clear from our studies that this clay is sufficiently superior in its action to simple mud or clay to warrant its approval as a satisfactory material for the application of heat to various bodily areas.

One piece of advertising matter and several reprints were submitted with the products, a booklet "Fango di Battaglia." This contains several exaggerated, unwarranted or misleading claims. They include such statements as: "chemical and radioactive properties . . . determine its effectiveness"; "so-called bathfever . . . a resemblance to foreign protein therapy." It will be noted that many therapeutic indications are outlined in the latter part of the pamphlet. Critical evidence to substantiate the use of the mud in these conditions has not been submitted.

In view of the foregoing report, the Council on Physical Therapy voted not to include Fango di Battaglia in its list of accepted devices.

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

PAUL NICHOLAS LEECH, Secretary.

IMMUNE GLOBULIN (HUMAN) (See New and Nonofficial Remedies, 1939, p. 412).

Lederle Laboratories, Pearl River, N. Y.

Immune Globulin (Human).—Placentas are selected in various hospitals from white women showing no sign of infectious disease and presenting a negative Wassermann reaction. The finely ground placentas are extracted with saline solution and the globulins are obtained from this extract by precipitation with ammonium sulfate. After removal of the salt by dialysis and addition of 0.05% of phenol, the globulin solution is sterilized by Berkefeld filtration. Marketed in packages of 2 cc. and 10 cc. rubber-stoppered vials.

BRUCELLA MELITENSIS VACCINE (See New and Nonofficial Remedies, 1939, p. 438).

The National Drug Co., Philadelphia.

Undulant Fever Vaccine (Abortus and Suis).—A heat killed suspension of Brucella abortus (bovine) 2,500 million per cubic centimeter and Brucella suis (porcine) 2,500 million per cubic centimeter, a total of 5,000 million per cubic centimeter. Merthiolate 1:10,000 is used as a preservative. The usual sterility tests prescribed by the U. S. government are made, and in addition blood agar streaks are made of the heat-killed vaccine before the addition of the merthiolate. Safety tests are made on the stock vaccine by injecting guinea pigs with the maximum human dose, 1 cc. No potency tests are made. Purity of cultures is determined by the study of colony formation, carbohydrate reactions and agglutination test with specific serum. The product is marketed in packages of one 5 cc. vial, in packages of one 15 cc. vial and in packages of one 30 cc. vial.

Dosage.—Deep subcutaneous or intramuscular injections of 0.1 cc., gradually increased by 0.1 or 0.2 cc., at three to five day intervals.

The National Drug Co., Philadelphia.

Undulant Fever Vaccine (Melitensis).—A heat killed suspension of Brucella melitensis (caprine) 2,500 million per cubic centimeter. Merthiolate 1:10,000 is used as a preservative. The usual sterility tests prescribed by the U. S. government are made, and in addition blood agar streaks are made of the heat-killed vaccine before the addition of the merthiolate. Safety tests are made on the stock vaccine by injecting guinea pigs with the maximum human dose, 1 cc. No potency tests are made. Purity of cultures is determined by the study of colony formation, carbohydrate reactions and agglutination test with specific serum. The product is marketed in packages of one 5 cc. vial, in packages of one 15 cc. vial and in packages of one 30 cc. vial.

Dosage.—Deep subcutaneous or intramuscular injections of 0.1 cc., gradually increased by 0.1 or 0.2 cc., at three to five day intervals.

ANTIPNEUMOCOCCIC SERUM, TYPE II (See New and Nonofficial Remedies, 1938, p. 399).

Mulford Biological Laboratories, Sharp & Dohme, Philadelphia and Baltimore.

Antipneumococcic Serum Type II, Refined and Concentrated-Mulford.—Prepared according to methods described by Lloyd D. Felton (*J. Immunol.* **21:** 357 [Nov.] 1931) from the serum of horses immunized by intravenous injections of virulent cultures of type I and type II pneumococci, and standardized for its content of type II antibodies. The potency of antipneumococcic serum type II, refined and concentrated, is expressed in terms of units and must contain not less than 1,000 units type II per cubic centimeter. By original definition a unit of antipneumococcic serum is that amount of serum necessary to protect mice against 1,000,000 M. L. D. of highly virulent pneumococci. Antipneumococcic serum type II, refined and concentrated, is tested by direct comparison of its protective value with that of a control serum, P11, issued by the National Institute of Health, which contains 150 units per cubic centimeter. Marketed in packages of one syringe containing 10,000 units, and in packages of one syringe containing 20,000 units.

ANTIPNEUMOCOCCIC SERUM, TYPE VII.—An antiserum containing antibodies of type VII pneumococcus (Diplococcus pneumoniae).

Dosage.—Intravenously, an initial dose of not less than 20,000 units followed by from 60,000 to 100,000 units in three doses at two hour intervals.

Mulford Biological Laboratories, Sharp & Dohme, Philadelphia and Baltimore.

Antipneumococcic Serum Type VII, Refined and Concentrated-Mulford.—Prepared according to methods described by Lloyd D. Felton (*J. Immunol.* **21:** 357 [Nov.] 1931) from the serum of horses immunized by intravenous injections of virulent cultures of type VII pneumococci and standardized for its content of type VII antibodies. The potency of antipneumococcic serum type VII, refined and concentrated, is expressed in terms of units and must contain not less than 1,000 units type VII per cubic centimeter. By original definition a unit of antipneumococcic serum is that amount of serum necessary to protect mice against 1,000,000 M. L. D. of highly virulent pneumococci. Antipneumococcic serum type VII, refined and concentrated, is tested by direct comparison of its protective value with that of a control serum, P7A, issued by the National Institute of Health which contains 900 units per cubic centimeter. Marketed in packages of one syringe containing 20,000 units.

THE CASE OF ASA BRUNSON VS. MORRIS FISHBEIN

On Monday May 29, in the District Court of the United States in and for the Western District of Texas, El Paso division, there came for trial before the Hon. Charles A. Boynton, a United States District Judge, and a jury the case of *Dr. Asa Brunson* v. *Dr. Morris Fishbein.* The plaintiff, Dr. Asa Brunson, was represented by Messrs. J. U. Sweeney and J. E. Quaid of El Paso, Texas, and the defendant, Dr. Morris Fishbein, was represented by Messrs. C. L. Harrell and H. D. Reynolds of Chicago and by Messrs. Brown & Brooke of El Paso.

As is usual in a federal court, the jury was selected from a panel of thirty who had been called, the attorneys being permitted to question the members of the panel on various subjects and then being permitted to strike off three names each, the remaining first twelve on the list being selected. There were then read to the court and to the jury the pleadings of the parties to the suit and the defendant's answer, after which the trial proceeded.

There is a new Federal Building in El Paso and the courtroom was a large, beautifully furnished chamber with provisions for an audience of several hundred. At various times during the trial the courtroom was taxed to its capacity.

In this case the plaintiff, Dr. Asa Brunson, who was treating tuberculosis with inhalations of a secret preparation, felt that he had been damaged because of a telegram sent by Dr. Fishbein to DeWitt Wallace, editor of the *Reader's Digest.* In January 1938 Mary Rose Bradford, wife of Roark Bradford, well known author, sent DeWitt Wallace a telegram asking whether or not he would be interested in an article dealing with the work of Asa Brunson, claiming that Brunson had cured more than 3,000 cases of tuberculosis and that he may be a second Pasteur. Mr. Wallace forwarded the inquiry to Dr. Fishbein, who telegraphed in reply that Dr. Hruby of the Chicago Municipal Tuberculosis Sanitarium had investigated the Holderness-Brunson treatment in 1921 and quoted from an article bearing Dr. Hruby's name which appeared in the Chicago *Herald and Examiner* stating that the method was a dangerous fake. To this quotation Dr. Fishbein added the statement that similar treatments tried elsewhere have also failed.

TESTIMONY OF DR. ASA BRUNSON

Direct Examination, Questions by Judge Sweeney:

Dr. Asa Brunson stated that he lived in El Paso, Texas. He is a physician and has resided in El Paso about fifteen and a half years. He studied at the Memphis Hospital Medical College from 1896 to 1899 and was graduated as a Doctor of Medicine and Surgery. After graduating he went to Williamette, Ark., and practiced medicine there for a year and a half. He was admitted to practice under the laws of the state of Arkansas. Then he went to New Gascony, Ark., and remained until the 1st of January 1908. Then he went to Pine Bluff, Ark.

Q.—How long were you in Pine Bluff? *A.*—I was in Pine Bluff, actively practicing, until the 25th of September 1918, when I was commissioned as Captain in the army and was discharged from the army on the 19th of June or 21st of June, I have forgotten now which, 1919.

After his discharge from the United States Army he resumed practice in Pine Bluff, Ark., and practiced until the 5th of March 1921, when he went to El Paso. He arrived on March 7, 1921. He came to El Paso to use the Holderness treatment for tuberculosis. He was admitted to practice in the state of Texas Dec. 15, 1923. He was connected with Holderness from about Oct. 1, 1920, in Pine Bluff, Ark., until some time in March 1922, in El Paso. He then bought the medicine from Holderness and practiced in El Paso; "that is, I gave the medicine, I had a doctor, until about the 10th of May, 1922, then I sold the furniture to the doctor and left."

Q.—What doctor? *A.*—Dr. S. T. Harris.

Q.—Where is Dr. Harris now? *A.*—I don't know.

Q.—Was any other doctor connected with you here? *A.*—While I was here? Yes, we had Dr. Bolling at first, and Dr. Thomas.

Q.—Where is Dr. Bolling? *A.*—Dr. Bolling is dead.

Q.—Where is Dr. Thomas? *A.*—Dr. Thomas is in Houston, Texas.

Q.—How long was Dr. Thomas associated with you? *A.*—Dr. Thomas was associated with us about three months.

Q.—State the relationship between yourself, Dr. Thomas and Holderness. *A.*—Dr. Thomas was an employed physician, because we didn't have a license.

Q.—Who employed him? *A.*—I employed him.

Q.—Individually? *A.*—I employed him individually.

Q.—Am I talking loud enough for you? *A.*—Yes, I can hear most everything you say.

Q.—What was the purpose of his employment? *A.*—The purpose of his employment was so that we could give the treatment according to the laws of the state of Texas.

Q.—What did he do? *A.*—He examined patients and prescribed for them.

Q.—How long was he connected with you? *A.*—About three months.

Q.—Then what happened, after the expiration of three months? *A.*—After the expiration of three months, we employed Dr. S. T. Harris for the rest of the time that I was in El Paso.

Q.—Did Dr. Thomas resign or quit the employment? *A.*—Well, I suppose he called it resigning, I didn't want him any more.

Q.—You were paying him how? *A.*—What?

Q.—How were you paying him? *A.*—Paying him $250 a week.

Q.—And he practiced merely with you, not on the outside? *A.*—He went to see patients that weren't able to come to the office, and examined and prescribed for patients in the office.

Q.—What was the occasion of his stopping his employment with you? *A.*—Well, I think the main reason was that he stated that Holderness wouldn't give up his formula.

Q.—Any other reasons? *A.*—Yes, it caused him to get fired out of the medical society.

Q.—Where? *A.*—Here.

Q.—After that, how long were you connected here with Holderness? *A.*—You mean after Thomas left?

Q.—After he left. *A.*—I made an arrangement with Holderness some time in March 1922 to buy the medicine from him and I would run the business myself, and on or about the 10th of May I sold out to Dr. S. T. Harris and left, and I have never used the Holderness treatment since.

Q.—What year was that? *A.*—1922.

Dr. Brunson then testified that he went to Little Rock, Ark., and stayed for five weeks, then to Chicago for five or six weeks and then back to Little Rock, Ark., where he opened offices, remaining until Jan. 13, 1924. Then he went to El Paso, Texas. In Little Rock, Ark., he had been treating tuberculosis with his own remedy, which was not connected with the Holderness remedy. He stated that he had never known the Holderness formula and had never divulged it. The testimony then proceeded:

Q.—What is your theory in the practice of medicine for the treatment of tuberculosis? *A.*—You just want the whole theory?

Q.—Your theory. *A.*—The reason I began treating tuberculosis was because I determined that the pus germ was doing the most harm, the absorption of pus causing every bad symptom that was manifested, and I thought if something could be given by inhalation that wouldn't irritate the lung or cause a harmful reaction that it would be a good treatment. I began using that after I discontinued with Holderness. I was working on my formula when Holderness told me one day, when he came in my office, that his father had a formula that was given by inhalation and that it was good. I knew Dr. Holderness by reputation, so I told Dr. J. S. Holderness to make me up a bottle of that medicine and I would try it out, I wasn't afraid to try it. I tried it at that time and I got good results. The people in Pine Bluff are, like many places, away from tubercular centers, they were afraid of tuberculosis, and I was asked to give up my offices or stop having tuberculars come to see me. That was then Holderness and myself decided we would come to El Paso. I had thirty-five or forty patients, and I got Dr. Simmons of Pine Bluff to look after those patients for, oh, two months after I left here—I mean left Pine Bluff.

Q.—With reference to tuberculosis, state whether or not the tubercular germ is in all human beings? *A.*—That is a common opinion of the best doctors, that every one has the tubercular bacillus in their system.

Q.—What creates tuberculosis? *A.*—The tubercular bacilli.

Q.—How? *A.*—By causing an irritation of the lung; but, without the mixed infection, it would never do but very little harm.

Q.—Then it is your theory that all human beings have the tubercular germ in their system? *A.*—That is my opinion.

Q.—And that it is when an individual is run down an irritation takes place in the lung, pus forms, that they become tuberculous? *A.*—Well, they are already tubercular, before they have the mixed infection.

Q.—What do you mean by mixed infection? *A.*—The pus germ. That was responsible for every death we have ever had from tuberculosis.

Q.—Then it is your theory to remove the pus? *A.*—Remove the pus and you prevent patients from absorbing the poison that they had been absorbing; and when you can keep that eliminated, you give nature an opportunity to build your patient up, and nature is the only doctor that we really have, medicine is indicated to aid nature only.

Q.—Now, Doctor, what are the manifestations of tuberculosis? *A.*—You mean the symptoms they usually have?

Q.—Symptoms, I may have used the wrong word. *A.*—It begins a little differently with different people. The usual rule is they begin with a slight cough, they lose in weight, lose their appetite, soon begin running a temperature, then begin coughing up mucus and pus. We put some of the expectoration under a microscope and we find the tubercular bacilli, in some cases we never find it, that is the proof positive of tuberculosis, the finding of the tubercular bacilli in the sputum.

DR. ASA BRUNSON

Q.—What other physical effects manifest themselves? *A.*—Well, just as the Bible said in the laws of Moses, it is a wasting away.

Q.—They have temperature? *A.*—They run temperature for some time after a person has had tuberculosis, say from eight months to two, three or four years. Many of them discontinue running temperature; the temperature out here in this country runs subnormal.

Q.—Then your theory is to remove the pus from the lung? *A.*—That is the only thing that has ever gotten any beneficial effect in the way of medicine.

Q.—How long have you specialized in tuberculosis? *A.*—Since the fall of 1920.

Q.—Now, during that length of time, how many patients, approximately, have you treated, since the fall of 1920? *A.*—That would be rather hard to approximate, I would say about two thousand.

Q.—What has been your degree of success with them? *A.*—Patients who have stayed with me and taken treatment as long as I would want them to take it, to be sure that they were well, I believe I have cured about 60 per cent; I have benefited about 90 per cent.

Q.—What do you mean by cured? *A.*—I mean that they have no symptoms whatever of tuberculosis.

Q.—Have you had those patients examined both before and after your treatment? *A.*—Many of them.

Q.—And the x-ray has shown a healing of the lungs? *A.*—Yes. It shows old scars. If you have had pneumonia or tuberculosis any length of time, it always shows scars after you are well.

Q.—Doctor, in 1921, approximately, I forget whether June or July, did you meet a Dr. Hruby? *A.*—Dr. Hruby was here in July or August 1921.

Q.—State your contact with him and what happened. *A.*—Dr. Hruby came to our office about 9 or 9:30 one morning.

Q.—Who is "our" office? *A.*—Holderness and Brunson. He came to the office and said that he came down to investigate the treatment. I told him we were very glad to see him and that an investigation was just what we wanted. He examined four or five patients in the office. Right after noon I took him out to see a Mr. Martin on Aurora Street. He talked to him a few minutes, he didn't examine him, and we left and came back to the office. About 5 o'clock, when we were closing, I told Dr. Hruby we would see him the next morning; he says "I am going back to Chicago tonight." I said "Doctor, you haven't been here long enough to tell what the effect of calomel would be." I said "You made up your mind you were going to condemn the treatment before you left Chicago." He says "I don't know about that," he says "I have to go back to Chicago." Whether he left that night or not, I don't know, he was never in our offices but that one time.

Q.—Did he have a sample of your medicine? *A.*—No.

Q.—Did he see any patients treated? *A.*—He saw some patients treated, I think he took a treatment himself, and he is still living.

Q.—How long, then, were you in contact with Dr. Hruby or knew that he was here? *A.*—I didn't know that he was here until he came to the office about 9:30 one morning, and that day was the only time that I ever saw him.

Q.—And what formula was it you were treating under at that time? *A.*—It was the Holderness formula.

Q.—How long after that was it that you commenced the treatment under your individual formula? *A.*—It was the next year, about the 1st or 2d of July 1922.

Q.—Did Dr. Hruby come down here and examine that at that time? *A.*—No, he came down in '21.

Q.—He was never here afterward that you knew of? *A.*—He was never here afterward that I ever heard of.

Q.—You say you have been specializing since about 1920? *A.*—Since about the 1st of October 1920.

Q.—When did you get your Texas license to practice medicine? *A.*—On the 15th of December 1923.

Q.—And you started practicing in January 1924 in El Paso? *A.*—I started practicing here on the 15th day of January 1924.

Q.—And I understand, from the time you left El Paso in 1921, after you— *A.*—I left here in 1922.

Q.—After you dissociated yourself from Holderness, that you did not use your formula here in El Paso until 1924? *A.*—Yes, that is right.

Q.—You did use it in Arkansas? *A.*—I used it in Little Rock.

Q.—Doctor, how do you arrive at the therapeutic value of medicine or a formula? *A.*—No doctor or chemist can arrive at a positive conclusion without trying the medicine out; drug using is drug proving.

Q.—It is a course of treatment? *A.*—You have to treat a patient, under the observation of a competent doctor, for a certain length of time to determine whether it is beneficial or inert.

Q.—In tuberculosis, how long would it take to ascertain the therapeutic value of a medicine? *A.*—That would a great deal depend on the time that a patient has had tuberculosis, what their resistance is, but, I would say in ninety days that any one could tell that the treatment was beneficial.

Q.—Whether it was beneficial? *A.*—That my treatment is beneficial, they could tell in ninety days.

Q.—The ordinary treatment, any treatment for tuberculosis? *A.*—It has to be tried before you can determine whether it is worth anything or not, and no medical treatment has ever been found that was worth anything.

Q.—That means a course of several weeks or several months? *A.*—Several months. I believe a tubercular specialist would state he would take about two years to fully determine whether a patient was well or not.

Q.—I am speaking of determining the therapeutic value? *A.*—You mean beneficial or cure?

Q.—The therapeutic value of a formula. *A.*—Oh, you can tell the therapeutic value, by the improvement of your patient, in ninety days.

Q.—It would take a course of time, however, to determine the therapeutic value? *A.*—Yes.

Q.—The therapeutic value of a formula or a medicine could not be determined in twenty-four hours? *A.*—Absolutely not, it couldn't be determined in three or four weeks.

Q.—Can a chemist determine the therapeutic value—

Mr. Brown:—Judge Sweeney's questions all along have been leading and suggestive, we object and ask him to discontinue.

The Court:—Don't ask leading and suggestive questions.

Judge Sweeney:—I will seek to do that.

Q.—Now, Doctor, are you acquainted with Dr. Morris Fishbein? *A.*—No, I am not.

Q.—Ever met him? *A.*—Never have met him.

Q.—Ever communicate with him? *A.*—I have written letters to the A. M. A. and I have had a letter written to him, but he never has written to me.

Q.—He never replied to your letters? *A.*—I never got any replies to the letters I wrote to the A. M. A. in regard to scientific investigation of my treatment. I offered to pay for an investigation.

Mr. Brown:—We object, unless he shows in what form that offer was made and what it was, we object to it. He never saw Dr. Fishbein personally; it, therefore, must have been in writing, we object to it as secondary evidence and not the best evidence.

The Court:—It is not responsive; the Court sustains the objection. If it is in a communication, the letter is the best evidence.

Mr. Sweeney:—If it please the Court, we want to introduce a copy of the telegram in question. In their answer they have admitted sending the telegram, and I want to just offer a copy of it for the record.

The Court:—You are now referring to telegram sent by whom to whom?

Mr. Sweeney:—By Fishbein to DeWitt Wallace.

The Court:—That is set up in the pleadings and is admitted.

Mr. Sweeney:—If it please the Court, I want to put it in. I presume it is a wire from DeWitt Wallace to Morris Fishbein. May I read that to the jury?

Mr. Brown:—The DeWitt Wallace deposition contains an exact copy of the whole thing. That would be better. Then there wouldn't be a duplication.

The Court:—It is set forth in the pleadings and admitted. Read it out of the petition unless there is some question about the correctness of that copy.

Mr. Brown:—The only point about it is this, just before the body of the telegram, the original shows what was said in response and positively identifies it.

Mr. Sweeney:—It reads: "Dr. Morris Fishbein. American Medical Assn. Chgo. Please advise wire collect or air mail what you think of following statement quote Dr. Asa Brunson of El Paso Texas has been making quiet but remarkable cures of pulmonary tuberculosis with formula used in atomizer or nebulizer and sprayed into lungs by inhalation three thousand cures in twelve years patients are flocking to El Paso to be cured within six months Dr. Brunson has begged U. S. Surgeon General for hundred patients for simultaneously treatment with hundred treated in usual way with monthly examination but no go stop Brunson is licensed M.D. and comes from a long line of American physicians he may be another Pasteur and a prophet without honor unquote. DeWitt Wallace Reader's Digest."

The Court:—What is the date of that telegram?

Mr. Sweeney:—19th day of January 1938. Here is the telegram in response to that telegram: "Mr. DeWitt Wallace. Reader's Digest. Mt. Kisco, N. Y., or Pleasantville, N. Y. Brunson cure investigated nineteen twenty-one by Allen Hruby comma Medical Superintendent Chicago Municipal Tuberculosis Sanitarium stop he says quote treatment without value as specific or cure for consumption stop in my opinion it is a fake of the most dangerous kind unquote treatment involves inhalation of menthol comma eucalyptol and turpentine stop similar methods tested elsewhere have also proved to be failures. Morris Fishbein." I want to introduce the telegram that was sent to Mr. DeWitt Wallace that occasioned his telegram to Dr. Fishbein "El Paso, Texas, January 19, 1938. Mr. DeWitt Wallace. Reader's Digest. Pleasantville, N. Y. Are you interested in article about Dr. Asa Brunson of El Paso Texas who has been making quiet but remarkable cures in pulmonary tuberculosis with formula used in atomizer or nebulizer and sprayed into lungs by inhalation three thousand cures in twelve years patients are flocking to El Paso to be cured within six months Dr. Brunson has begged U. S. Surgeon General for hundred patients for simultaneously treatment with hundred treated in usual way with monthly examination but no go stop Brunson is licensed M.D. and comes from a long line of American physicians he may be another Pasteur and a prophet without honor stop we are here for a couple of weeks spent Christmas in Santa Fe wire me Hotel Del Norte. Mary Rose Bradford."

This is the letter from Dr. Fishbein to Altheimer.

Mr. Harrell:—That letter is in response to something. He would not write that without having received something.

Mr. Quaid:—We reserve the right to introduce that as we see fit.

Mr. Harrell:—You have the other letter have you not?

Mr. Sweeney:—This was admitted in their answer. That is what I am reading: "*The Journal of the American Medical Association.* 535 North Dearborn Street Chicago. Editorial Department. Morris Fishbein. M.D. Editor. (In your reply please refer to these initials: MF.) February 7, 1938. Mr. Ben J. Altheimer, Chicago, Illinois. Dear Mr. Altheimer: I am still convinced that the promotion as a cure for tuberculosis of a solution such as that used by Brunson in a nebulizer is a dangerous form of practice. If Doctor Brunson wishes his treatment investigated by the American Medical Association all that he needs to do is to reveal his formula and to make due application to the Council on Pharmacy and Chemistry of the American Medical Association. Very truly yours. Morris Fishbein."

That was in response to this letter. I will not read the heading on the letter: "Dr. Morris Fishbein. 535 North Dearborn Street. Chicago. February 3, 1938. My dear Doctor: This morning I received a letter from Dr. Asa Brunson of El Paso, Texas, who is specializing in the treatment of tuberculosis. Dr. Brunson is a boyhood friend of mine from my old home in Arkansas . . ."

Mr. Brown:—We are going to object to that, if your Honor please. We except and object to the introduction of that letter at the present time because it has not been properly identified or proven up, and, furthermore, it contains statements that, at least, would not be admissible at this time. It is hearsay.

Mr. Sweeney:—I did not intend to introduce it in the first place. I was merely proving up what they admitted in their petition. I did not desire to offer it or urge it.

The Court:—Do you withdraw it at this time?

Mr. Sweeney:—Yes, sir, we withdraw it.

Q.—Now, Dr. Brunson, after you became cognizant of the letters that have just been introduced here, what effect, if any, did that have upon you? *A.*—It had a very depressing effect upon me. It made me feel that I was incompetent, that I was a faker, that I was giving people a dangerous treatment and it made me feel terribly bad.

Q.—How does it affect you now, Doctor? *A.*—The same way.

Q.—If you can, state how has your practice been affected, if it has been affected?

Mr. Brown:—If Your Honor please, I think that calls for a very general, broad statement, too general, too broad. It calls for conclusion. We object to it.

The Court:—The Court sustains the objection. If the practice has been affected, of course, it can be shown by some positive evidence, showing some special damage. The Court sustains the exception.

Q.—Dr. Brunson, prior to this, in prior years what has been the extent of your practice as a tuberculosis specialist? *A.*—It has gotten less every year.

Q.—Since about when? *A.*—It started in '31.

Q.—How was it prior to the publication of this? *A.*—After it was published in *Hygeia* . . .

Mr. Brown:—If Your Honor please, there is no reference to publication in *Hygeia* or when the publication was made in *Hygeia.* We object to that unless that information is given, and unless it is within one year prior to the suit, we object to that.

Mr. Sweeney:—I think Mr. Brown is correct as to that.

The Court:—Very well.

Q.—Doctor, I asked the question how it has been affected since this telegram, if it has been affected. *A.*—Repeat that question.

The Court:—The date was February 20, 1938.

Mr. Brown:—The queston as to how his practice has been affected since the receipt of that telegram is too general in its nature, not specific enough and we object to it.

The Court:—The question is very general. If you could show a specific damage it could be confined to that. There are a good many reasons why a practice might be decreased and increased regardless of telegrams.

Mr. Brown:—We suggest that might be reached by asking for certain things.

Mr. Sweeney:—I know how to reach it. I do not need any suggestions.

Q.—Dr. Brunson, what has been the extent of your practice since February 1938? *A.*—I have very little.

Q.—What do you mean by very little? *A.*—I haven't a pay patient coming into the office today.

Q.—How long has that been a fact? *A.*—It has been off and on for the last year or since we got that telegram.

Q.—This case has been pretty generally discussed here in the city? *A.*—Yes.

Q.—People know about it?

Mr. Brown:—He is now talking about a case, having brought a lawsuit.

Mr. Sweeney:—I withdraw that question.

Q.—You state, Doctor, that you did suffer pain, humiliation, embarrassment by reason of the publication of that telegram? *A.*—Yes.

Q.—Doctor, this telegram that I read a while ago from DeWitt Wallace to Mary Bradford, stating what Dr. Fishbein had stated in his telegram to DeWitt Wallace, you received from whom? *A.*—I have forgotten who she gave it to, she gave it to some one to give to me. I didn't know who that was.

Q.—This reached you? *A.*—Yes.

Q.—How did you construe the words "dangerous fake"?

Mr. Brown:—If Your Honor please, how he construes it is immaterial. We object to it.

The Court:—The Court sustains the objection.

Q.—Doctor, is your medicine dangerous? *A.*—Absolutely not.

***Mr. Brown:*—We object to that, if Your Honor please.**

***The Court:*—The Court overrules the exception. He is a doctor, he is an expert and will be permitted to answer that question.**

***Mr. Brown:*—We except.**

Q.—Is your medicine a fake? *A.*—No.

Q.—In your experience in using your medicine during the last—Since 1922, since you have promulgated your formula, what has been your experience with it with reference to its therapeutic value? *A.*—It has wonderful therapeutic value, else I never would have given it.

CROSS EXAMINATION

By Mr. Brown:

Q.—Dr. Brunson, your first schooling was in a medical school? *A.*—Memphis Hospital Medical College.

He then testified that he went to the University of Tennessee, Maryland Military and Naval Academy and to Belleview, Va., at the W. R. Abbott School, a semicollege, where they had preparatory classes and advanced classes. He first went to school at a Convent in Pine Bluff, Ark., about a year and a half, and then had a "governess on our plantation," for three or four years. Next he went to the Maryland Military and Naval Academy from about the middle of May until the next March.

Q.—It is no longer in existence? *A.*—No, it broke up. That was the reason I left there.

. . . . . .

After Belleview he went to the University of Tennessee.

A.—I went there the first part of September and on account of my father's illness I left about the middle of May 1890.

Q.—Then you were out of school for a long period of several years, were you not? *A.*—You mean before I began studying medicine?

Q.—Yes. *A.*—From 1890 I was out about six years.

Q.—And were clerking around, bookkeeping? *A.*—Mostly bookkeeping.

Q.—What did you do in that intervening period of years? *A.*—Those six years?

Q.—Yes. *A.*—I worked for a while in Dallas, Texas, and I worked in Memphis, and I worked down in Mississippi.

Q.—What was the general nature of your business during those years? *A.*—It was accounting business.

Q.—And clerical? *A.*—Yes.

Q.—Then what did you do? *A.*—I studied medicine.

Q.—What branch of medicine? *A.*—They taught all branches.

Q.—How long was each session? *A.*—About seven months.

Q.—Then you attended three sessions of seven months each? *A.*—Three sessions.

Q.—You say you graduated from there? *A.*—Yes.

Q.—In what year? *A.*—I graduated on the 27th day of April 1899.

Q.—And when were you licensed in Arkansas? *A.*—We had county boards at that time and I think it was about the 10th of May I was admitted to practice.

Q.—Was this college in Memphis run in connection with a hospital? *A.*—You mean the Memphis college?

Q.—Yes. *A.*—Yes, run in connection with the City Hospital.

Q.—And the only medical education you had was that which you received at this hospital college? *A.*—That is about all that any doctors get.

Q.—I am not asking you that. I am asking you if that was the only medical education you received? *A.*—That was the only medical education I received.

Q.—When did you first meet Jim Holderness? *A.*—That is rather a hard question to answer. I have known him from boyhood. I don't remember just when I did first meet him.

Q.—Isn't it true he was never a licensed practitioner of medicine? *A.*—He never had a license to practice.

Q.—He was unable to obtain a license in Arkansas, wasn't he? *A.*—He was unable to obtain a license in Arkansas?

Q.—He was unable to obtain a license in Arkansas, wasn't he? *A.*—I didn't know that until I saw his deposition.

Q.—That is true, isn't it? *A.*—I guess it is for he said so.

Q.—He never took out a license in Texas? *A.*—No, he never did.

Q.—You and he though operated together in Arkansas for how long a period of time? *A.*—Well, he furnished the medicine; he didn't very seldom come to my office at all—from about the 1st of October until we left there on the 5th of March '21.

Q.—The 5th of October 1920? *A.*—1920, yes, sir.

Q.—Until March 1921? *A.*—Until March '21.

Q.—You were using his remedy during that period of time? *A.*—I was using his remedy in Pine Bluff, Ark.

Q.—Did you and he both come to El Paso at the same time? *A.*—We both came down together.

Q.—And opened up offices in what building? *A.*—In what building? Well, it was called the El Paso Bank & Trust Company Building at that time. It is the Abdou Building now.

Q.—On the corner of Texas and Mesa? *A.*—Yes, sir.

Q.—How long were you in that office? *A.*—We were in that building the entire time that we were here.

Q.—You had on the doors Doctors Brunson & Holderness, did you not? *A.*—We did not have anything on the door at all.

Q.—Are you certain about that? *A.*—I know it.

Q.—Have you read Jim Holderness's deposition? *A.*—No.

Q.—You say there was nothing on the doors at all? *A.*—Never did put anything on the door.

Q.—You held yourselves out as administering what was known as the Brunson-Holderness treatment for tuberculosis? *A.*—The Holderness treatment; not Brunson.

Q.—You say you haven't read Brunson's deposition? *A.*—What?

Q.—You say you haven't read Holderness's deposition? *A.*—I haven't read Holderness's deposition.

Q.—Do you deny that it was known as the Brunson-Holderness treatment? *A.*—It was known as the Holderness treatment, but Holderness and Brunson were administering the treatment.

Q.—Did you have any dissolution arrangement with Holderness when you left here? *A.*—When I left him he paid me for the interest that he had given me; we didn't have any contract at all except oral.

Q.—You had an oral arrangement with him under which you were not to use his treatment, did you not? *A.*—I did.

Q.—You left here and went back then to Arkansas? *A.*—What is that?

Q.—You left here and went back then to Arkansas? *A.*—I left here and went to Arkansas, then to Chicago.

Q.—In that interval between your leaving El Paso and your return to El Paso what were you doing? *A.*—Practiced medicine in Arkansas, Little Rock.

Q.—What treatment did you use up there? *A.*—I was using my own.

Q.—How soon after you left here was it you claim you discovered your own treatment? *A.*—I was working on my treatment and had it perfected before using Holderness, but I never had given mine.

Q.—Did you use eucalyptus oil in your treatment? *A.*—What kind of oil?

Q.—Did you use eucalyptus oil? *A.*—I won't answer that question.

Q.—You decline to? *A.*—It is my own private formula, of value.

Q.—Did you use oil of pine in your treatment? *A.*—I refuse to answer that.

Q.—Do you use petrolatum in your treatment? *A.*—I won't answer it.

Q.—Do you use menthol? *A.*—I won't answer.

Q.—Doctor, you are asking this jury to pass upon whether your remedy had a therapeutic value or not? *A.*—It has a therapeutic—

Q.—Wait a moment. You are asking this jury to pass upon whether your remedy had a therapeutic value or not, are you not? *A.*—I don't think the jury could act on the therapeutic value; they don't know anything about medicine.

Q.—You are asking them to pass upon the genuineness of your remedy? *A.*—Asking them to pass on the evidence that is brought before them.

Q.—And you decline to disclose to this Court or to this jury the contents of your formula, do you? *A.*—I endeavored to get a scientific investigation and offered my formula, to give my formula.

Q.—Yes or no, do you decline to disclose to this Court and to this jury? *A.*—I do.

Q.—Of what your formula consists? *A.*—I do.

Q.—You did that when we took your deposition March 8th, when we took your deposition you refused when we asked you? *A.*—I thought that was entirely irrelevant.

Q.—You declined, didn't you? *A.*—Yes, sir.

Q.—And you decline at the present time? *A.*—I do.

Q.—And you are unwilling to submit to the defendant in this case, or to this jury, the contents of your formula? *A.*—Why should I do it when they say they have analyzed my formula and know what it is?

Mr. Brown:—Your Honor please, we ask that Dr. Brunson be required to state the contents of his formula. We believe it essential to the defense in this case. He is asking in this case, and one of the very vital questions to be passed upon, is whether or not his formula has therapeutic value. We deny that it has. We want to submit it to doctors and qualified chemists.

The Court:—The Court will excuse the jurors for a few minutes, and they may remain outside, and the Court will hear from counsel and pass on it as to the legal question.

The jury was thereupon excused from the court room at 3:07 p. m., and during their absence the following proceedings were had:

The Court:—The Court will hear from counsel for defendant as to the demand made by you on the Court to rule that the formula should be forthcoming, and the Court will then hear from Counsel on the other side in the case. The Court will hear from counsel for the defendant first. You may be seated, Judge Sweeney.

Judge Sweeney:—I was trying to get the motion.

The Court:—There was a motion filed to this Court reciting that on taking of the deposition of the plaintiff in this case these questions were propounded to the plaintiff at such time, asking that he reveal the contents of his formula. The Court deferred ruling upon the same, stating that that was a question that could be raised at the time of the trial, and that the Court would hear from counsel on both sides at that time. That time has arisen, and the Court will hear from you.

Mr. Brown:—I want to ask Dr. Brunson one question in connection with this.

Q.—Dr. Brunson, isn't it true that you now contend, and have always contended, that chemists could not analyze your solution or preparation? *A.*—They can find chemicals like carbon, hydrogen, oxygen and nitrogen, but that is as far as they can go, organic substance.

Q.—And the only way that they can find that out is from what you tell us, or what you say your formula contains? *A.*—They claim they have made an analysis of it.

Q.—Answer my question. Isn't it true that no analysis can determine what the contents are, and the only way we can determine is what you say it is? *A.*—That is my opinion, but it may not be the chemists' opinion.

Mr. Brown:—Your Honor please, that is a very vital question in this case. Dr. Fishbein's telegram, upon which they attempt to base a plea for libel, states that this solution is of no therapeutic value; we allege that the Holderness treatment was of no therapeutic value, and that they are substantially the same solutions, the same formula. The plaintiff in this case is contending to the contrary. It is one of the very elements to be determined by this Court and by this jury as to whether or not the formula has a therapeutic value. From his own lips come the words that in his opinion we cannot determine what the contents are except as to certain organic substances. It leaves the matter entirely in doubt. The matter rests within his own mind and his own cognizance as to what the contents of this formula may be. All doubt can be removed from the mind of this Court and the jury if he makes a true and correct statement as to what the contents are. We then can have testimony of experts testifying upon the therapeutic value of this solution and can then determine whether or not it has such value as he claims it has, or hasn't the value as we claim it has not. In other words, we can determine whether or not his remedy has a therapeutic value. Under the circumstances we feel that as he has invoked the jurisdiction of this Court that it is a slander of him, a libel, and a libel of his remedy, and we feel that Dr. Brunson should be required to make this statement to this Court. We have no authorities upon the subject. I don't know that the question has ever arisen before of admissibility of evidence like this in a Court. There are, of course, analogous instances where parties have from time to time been required to disclose certain information which was vital to the defense or to the issues in the case. We respectfully submit plaintiff in this case should be required to divulge this information. If honestly it has value this Court ought to know it, and if to the contrary this Court and jury ought to know. That is one of the very issues, and he can settle one of the issues at this very time possibly by disclosing it. This same question was raised, if Your Honor please, in the Brinkley case down at Del Rio when one of the doctors was on the stand testifying. We are calling the Court's attention to this matter. The Court is not bound by this ruling of that Court, but I understand Judge McMillan required them to disclose it.

The Court:—He did not have any disposition not to disclose it in that case and proceeded to tell it.

Mr. Brown:—As I read the transcript—

The Court:—What he was doing, and so forth, and did testify as to what he used at different periods of time.

Mr. Brown:—Has the Court a copy of the transcript there of what occurred at that time? I understand the witness declined at first on the ground this particular formula was private, and then the Court required him to answer it.

The Court:—The Court has not the transcript.

Mr. Brown:—The question arose while the witness Peterman was on the stand and was testifying, and he declined to answer the question because it was his secret formula, and the Court said "You will have to answer," and he answered.

The Court:—I will hear from counsel on the other side as to what authorities you have. Have you finished, Mr. Brown?

Mr. Brown:—Yes, sir, at the present time.

The Court:—The Court will be very glad now to hear from you fully on this question. It is a very important question in this case. This matter may perhaps turn upon this very question. Therefore the Court invites counsel to avail themselves of the opportunity, which the Court now gives them, to discuss this question and present to the Court all reasons and authorities they have that touch upon the question.

Mr. Quaid:—If your Honor please, I would first like to recall, before I present a few authorities, the condition of the record in this case. First we have a sworn motion of the defendant's counsel to the effect that defendant expects to show to the Court he has an analysis of this solution made, and he further expects to show by said analysis that said solution has no therapeutic value. That is the first thing I would like for the Court to bear in mind. They say they have an analysis of our medicine, and swear to it, and also swear to the fact that the solution has no therapeutic value. As far as therapeutic value is concerned I am maintaining that this idea, the fact that they say it has no therapeutic value, would lead us to believe that there is nothing that is wrong with it or injures the public health or anything like that. Some of the cases go off on the point of forcing a man, especially in a criminal case, to show his formula because it is something against public health connected with it, but the mere fact that they say it has no therapeutic value would be argumentative to say the least of it.

The Court:—Have we or not that question here? Under our statute, the Texas statute, if the matter is a matter of public concern; the question is on a question of health, and whether one is advertising it to a considerable extent, and whether that is or is not a matter of public concern, a matter of concern to the public. Then we have here the question of defense of truthfulness of the statements. Those are questions that are to be considered here. We have not arrived at a point in this case but what the Court ought to have gone further into that before definitely ruling on this question, as to whether or not he is to disclose the formula or not. This is a matter, in the opinion of the Court, of very considerable moment in this case, as to whether he should be called on to reveal his formula. He is the plaintiff, brought the suit, and the other parties meet the situation by saying they have analyzed it, and perhaps they have analyzed it, and perhaps they have not. That has not been shown; as far as he is concerned he says they can't analyze it. The question of therapeutic value is a matter within the medical realm, and perhaps we will have to get testimony on that question from medical experts. I won't interrupt you further. I want to get your views.

Mr. Quaid:—They say they have had an analysis of it; they say it has no therapeutic value. The testimony thus far in this case is that if there was a disclosure of the formula right now it would not do any good as far as knowing whether or not it was good as a tuberculosis cure, because the testimony so far is that you have to take the medicine and apply and observe its effects for sixty or ninety days, or maybe longer. I was just laying down the facts first before I come to my law. First I would say that the formula of this kind is a property right, that is valuable to the party owning it. That has been held by the Supreme Court of the United States in two different cases. I would say first it is a property right that he should not be made to give up just idly. First I would like to call the Court's attention to some expressions on page 743, Corpus Juris, volume 70, section 897: "If disclosure will depreciate its value, a witness has a qualified, but not an absolute, privilege of refusing to disclose a trade secret; he should not be compelled to disclose such a secret where to do so is not essential to the ends of justice." And a note to that section—

The Court:—Now, what are the facts in that particular case? The case is so much more illuminating.

Mr. Quaid:—I first lay down the general position. I have some cases that I will come to (reading): "The policy of the law is unquestionably that of fostering and protecting trade secrets, as is shown by the laws affecting their registration, and, unless the interests of justice imperatively demand their disclosure, a disregard of valuable property rights arising from enforced disclosure, whether by means of contempt proceedings or otherwise, approaches at least the confiscation of private property. *Willson* v. *Superior Court of Los Angeles County.*

The Court:—The question is whether he, as plaintiff in this case, or just how the question arose, it must necessarily be a question whether or not the ends of justice necessitate it.

Mr. Quaid:—I have some cases here which I expect to present. I want to lay down the general proposition of law it is property rights which the Court is slow to force disclosures, and does not do so unless it is imperatively necessary to the ends of justice.

Now, the case, and I was not able to get this case, it is an advance opinion, of *B. B. X. Chemical Company* v. *Cataract Chemical Company*, Western District of New York, decided October 24, 1938, decided by Judge Knight. In patent infringement suit in which defendant's interrogatory asking plaintiff to give analysis of defendant's composition alleged to infringe was not required to be answered where plaintiff had already specifically designated composition made and sold by defendant which it charged as infringement since defendant either knew analysis or was in position to obtain analysis.

The Court:—This plaintiff now says you can't do it.

Mr. Quaid:—I know, Your Honor, but they swear they have got it, and that is a part of the record in this case under oath.

The Court:—Both of them are in the record.

Mr. Quaid:—Now, the case in the 63rd L. R. A., page 255, *Stewart* v. *Hook*. In this case the plaintiff brought suit to enjoin defendants from using their formula.

(Mr. Quaid thereupon read from said opinion which the reporter did not take.)

The Court:—Mr. Quaid, just to illustrate the situation in which you might find yourself. The Court is not ruling on this question just at this time, perhaps, and perhaps is. It is up at this time. To illustrate, suppose the testimony comes in here to this effect, testimony introduced on trial of this case, is analyzed, can be analyzed, and that the analysis shows it is worthless, what would be your situation on the ground of the defense of truthfulness of the statement?

Mr. Quaid:—**That has nothing to do with the matter. If the analysis shows it is worthless and has no therapeutic value then we have not been libeled, that is how I see the matter.**

The Court:—**Haven't what?**

Mr. Quaid:—**We have not been libeled.**

The Court:—**You have a man who takes the stand and testifies it is impossible to analyze, he has locked up in his bosom and withholds the material facts that will be material to show the true worth. I am going to let you go on further in the case, but this question is up in this case big and strong from now on.**

Mr. Brown:—**May I reply for just a moment?**

The Court:—**Yes, you may reply. The Court has already replied to his infringement case. It is not an infringement case where the plaintiff is bringing a suit for somebody else using a trade name or infringing on something. He has got a question in this case, and you have no case you have presented. Therefore we must do the best we can, no case in which perhaps the plaintiff himself—I will put the matter—by bringing a suit—he did not have to bring the suit.**

Mr. Quaid:—**Your Honor—**

The Court:—**That is all. I merely make that suggestion. I will hear from you further, any authorities any of you have or can find, within reason, to present the Court, and the Court will probably rule on that.**

Mr. Brown:—**We can fortify ourselves by replying to council in just a few moments time.**

The Court:—**That is your privilege.**

Mr. Brown:—**In the first place, the case of *Stewart* v. *Hook*, which counsel recites to be found in 63 L. R. A., the case of the Georgia Supreme Court, is not in point, for this reason: In that case a party was seeking to restrain a party who had worked for him as an employee, and as result of that confidential relation obtained knowledge of his secret formula and was about to disclose it to the world, and the Court said it was a proprietary right, a property right which he was trying to keep, and keep them from divulging out to the world abroad. In our motion asking that plaintiff be required to disclose his formula, which was filed on the 8th of May, we state the defendant is informed that plaintiff will contend it is impossible for a chemist properly to make an analysis of said solution and that for that reason this defendant says it is important that he obtain information from the plaintiff as to the contents of said solution in order that he may submit same to a reputable medical man or practitioner and obtain their opinion, and so forth. We are confronted with that very condition upon the stand here now when the plaintiff says in his opinion and judgment it cannot be obtained accurately—**

The Court:—**The Court announces at this time that the Court reserves ruling on that matter and will rule on it later in the progress of the case.**

Q.—Doctor, I believe I understood you to say that immediately, or shortly, after you dissociated yourself from Holderness, in 1921 or '22, you discovered your own treatment? *A.*—I had it before I joined with Holderness but I never had used it.

Q.—You had discovered it, then, before you had joined with Holderness? *A.*—Yes, but I never had used it.

Q.—You preferred to use his? *A.*—He said his treatment had been used a good many years by his father.

Q.—You hadn't used your treatment up to that time? *A.*—I hadn't tried mine out.

Q.—I believe you said nature is the only doctor? *A.*—What is that?

Q.—In tuberculosis cases, I believe you said nature is the only doctor? *A.*—No, I said aiding nature is the only doctor.

Q.—You claim to have the only effective treatment of tuberculosis, do you not? *A.*—I claim what?

Q.—You claim to have the only effective treatment for tuberculosis, is that not true? *A.*—Yes.

Q.—For how long a time have you been claiming that you had the only effective treatment for tuberculosis? *A.*—That I have been saying so?

Q.—Yes. *A.*—I haven't said so.

Q.—Didn't you just now say so? *A.*—I did say so just now, but I haven't made that public, I don't claim that it is a specific.

Q.—Are you claiming now for the first time that it is the only effective treatment? *A.*—I mean by that drug treatment.

Q.—I don't understand you. *A.*—Giving drugs.

Q.—I am asking you about your treatment, do you say now your treatment is the only effective treatment? *A.*—The only one I know of.

Q.—In all your experience, you have never come across another treatment you know of as effective, is that true? *A.*—Not as effective as mine.

Q.—You are certain about that? *A.*—I know it.

Q.—In your mind, that is a positive, demonstrated fact, is it? *A.*—That my treatment is?

Q.—Is the only effective treatment? *A.*—That I know of.

Q.—Well, were your treatment and Holderness's treatment the same? *A.*—I never knew Holderness's formula at all.

Q.—What is the essential difference between the two? *A.*—I don't know. He never has seen my treatment at all, and I never did know his formula.

Q.—Then you administered Holderness's treatment without knowing what it was? *A.*—Yes.

Q.—And you also recommended his treatment to others without knowing what it was? *A.*—Yes, because I got results.

Q.—And you have maintained in this case that a person couldn't tell whether or not a treatment was effective without knowing of what it consisted, isn't that true? *A.*—Without knowing what it consisted of?

Q.—Yes. *A.*—Absolutely, you can tell.

Q.—Haven't you maintained you couldn't tell whether or not the treatment had any value without knowing of what it consisted? *A.*—Not unless you tried it.

Q.—Over how long a period of time? *A.*—It depends on the class of patient you have, anywhere from two months to five or six months.

Q.—But you finally discarded Holderness's treatment? *A.*—What is that?

Q.—You finally discarded Holderness's treatment, I say, you finally discarded the treatment of Holderness? *A.*—I don't understand what you say.

Q.—Let me put it in simpler English. You finally quit using Holderness's treatment? *A.*—Yes, I finally quit using Holderness's treatment.

Q.—And agreed at that time you wouldn't use it any more after you sold out? *A.*—And I never have!

Q.—And you can't tell us in what essential particulars that treatment differed from your treatment? *A.*—It was given the same way, but, not knowing the contents of his formula, I couldn't say.

Q.—Are they given identically the same way in each instance? *A.*—They are given the same way, by inhalation.

Q.—Describe to us now the way in which the treatment is administered. *A.*—You mean my treatment?

Q.—You say they are the same. *A.*—Well, they use a tank of oxygen to force the medicine out of the atomizer, which breaks it up into fine globules, it looks like mist; you inhale it down into the lungs and exhale it, it is very simple and easy to do.

Q.—Is that all there is to it? *A.*—That is all there is to it in giving it.

Q.—What effect do you claim that this solution, which you use as a vapor, has upon the lungs? *A.*—It acts as an antiseptic, it liquefies the tough secretion in the lung, making it easier to expel.

Q.—What is the antiseptic element in it? *A.*—What?

Q.—What is the antiseptic element in it, what is it that renders it antiseptic? *A.*—Well, that is one thing I am not going tell you about.

Q.—You refuse to tell that. Just how does this machine work, Doctor? *A.*—What is that?

Q.—Just how does this machine work? *A.*—There isn't any machine to it, nothing in the world but a tank of oxygen with a regulator.

Q.—What is the regulator? *A.*—Where you can regulate the number of pounds of oxygen you wish to use to force it out of the bottle.

Q.—Is it forced into the lungs? *A.*—No, it is not forced into the lungs, it is breathed, just like breathing air.

Q.—It is forced out of this bottle or container into the nostrils or mouth, and then inhaled? *A.*—Yes, it is an inhalation treatment; anybody that has ever used an atomizer knows just how it works.

Q.—It is as simple as that? *A.*—Sure, it is simple.

Q.—Doctor, how do you go about diagnosing a case of tuberculosis? *A.*—Just like other doctors do.

Q.—Well, just tell us how? *A.*—Well, I use a stethoscope and use palpation and auscultation.

Q.—What does palpation consist of? *A.*—Palpation consists of palpating the lungs to see where there is dulness.

Q.—How do you do that? *A.*—You put your hands, you can feel when breathing if there is an affected lung, that is what is called palpation, putting your hand on it.

Q.—What is the next process? *A.*—Auscultation is the best way to determine.

Q.—What is that? *A.*—I use a stethoscope.

Q.—What do you mean by auscultation? *A.*—Listening at the air going through the lung.

Q.—Is it necessary to have good hearing for that purpose? *A.*—Well, you can hear pretty good when you have got it in your ear, just like using a telephone; I have known many deaf people that could hear over a telephone when they couldn't hear a conversation.

Q.—It is necessary to have good hearing to hear particular rales? *A.*—You hear crepitation, subcrepitation, moist rales, sibilant rales, all kinds of rales.

Q.—It is essential you hear to determine whether the lungs are working? *A.*—Do you want to know what causes those rales?

Q.—I don't care, I want to know about the process. *A.*—As a usual thing, you get the personal history when they come in; they know they have tuberculosis before they come, because the majority of patients that come down here have advanced tuberculosis.

Q.—They don't come to you to find whether they have it? *A.*—They usually know before they come, but I examine them to find out just what I think about it.

Q.—Did you examine them in '21 and '22 to find out what you thought about it? *A.*—What?

Q.—Did you examine them in '21 and '22 to find out what you thought about it? *A.*—No, we had a doctor doing the examining.

Q.—You didn't do any examining at that time? *A.*—No.

Q.—You just collected the fees, is that correct? *A.*—Yes, I didn't have a license to practice in Texas, consequently I didn't break the law.

Q.—And you were using upon them a formula which you didn't know the contents of? *A.*—I used one I didn't know the contents of?

Q.—At that time you used a formula which you didn't know the contents of? *A.*—Yes, and giving treatments and getting results is the only way you can tell the beneficial effects of a formula.

Q.—What else do you use in connection with your diagnosis? *A.*—Well, sometimes I have the sputum examined and x-ray pictures made.

Q.—Anything else? *A.*—No, that is about all that is necessary.

Q.—Have you been personally using those methods in your diagnosis? *A.*—The methods I have just spoken of?

Q.—Yes. *A.*—Many times I don't have an x-ray picture, because tuberculosis is a poor man's disease and $10 is worth a lot to them; when I know I have made a correct diagnosis by physical examination, I don't put them to that expense.

Q.—You claim to have made a life study of tuberculosis? *A.*—What?

Q.—You claim to have made a life study of tuberculosis? *A.*—No, I haven't made a life study.

Q. How long have you been specializing in it? *A.*—Since about the 1st of October 1920.

Q.—What have you studied, what authors? *A.*—I haven't found any authors that agree with my theory of tuberculosis.

Q.—Then you don't rely upon any authors? *A.*—No, sir, I study my patients from bedside and office.

Q.—Have you been studying any standard works on that subject? *A.*—Yes, I have read a good deal, but I don't agree with them.

Q.—What books? *A.*—Potter! Can any one say he is not good?

Q.—I am asking you, sir. What authors—Potter? *A.*—Potter.

Q.—What other author? *A.*—Well, I have read—I don't know that I can mention them right now, in the practice of medicine, Tyson, Anders.

Q.—I am asking you about books on the subject of tuberculosis, consumption. *A.*—The practice of medicine certainly has that in it.

Q.—A lot of other subjects, too. I am not asking you about other subjects, but what special works you have studied on tuberculosis? *A.*—I have studied more tuberculosis from watching my patients.

Q.—Name the authors. *A.*—I told you Potter.

Q.—That is the only one you can name at the present time? *A.*—Right now. I can name several in the morning.

Q.—Do you have to go look them up to tell me? *A.*—No, I have the books right there.

Q.—You have to refresh your memory? *A.*—To get the names of the books.

Q.—Well, have you attended any other than the clinic in Chicago about '22 or '23, have you ever attended any tuberculosis clinic, if so, what? *A.*—In Chicago.

Q.—Have you attended any tuberculosis clinic anywhere since '22? *A.*—No, I don't think it necessary, because they don't know anything about tuberculosis.

Q.—You are resting upon your own assurance that in these tuberculosis clinics they don't know anything about tuberculosis, and you haven't gone and attended? *A.*—If they knew much about it, why haven't they found a cure?

Q.—You haven't seen fit to rely on them or go to them? *A.*—No, I don't care to go and see what somebody else said that didn't know anything about it.

Q.—You have testified under oath that these specialists at these clinics didn't know anything about it? *A.*—What is that?

Q.—You have testified under oath that these specialists at these clinics didn't know anything about the subject; is that correct? *A.*—I never heard of them knowing very much about it, they aren't curing any one.

Q.—You are about the only one in this part of the country that does cure them? *A.*—A certain percentage of people will get well without any treatment, no matter where they might go.

Q.—You have claimed upon many occasions you are about the only one in this part of the country that knows anything about it? *A.*—I never made that claim at all.

Q.—You have never claimed to have an international fame along that line? *A.*—Oh, no. It has been more defame than fame.

Q.—You don't belong to the local medical society, do you? *A.*—Never applied.

Q.—You don't belong to the state medical association? *A.*—I couldn't unless I belonged to the county.

Q.—You don't belong to the American Medical Association? A.—No, thank God, I never will.

Q.—Have you ever belonged? *A.*—I have.

Q.—Have you belonged either to the local or state medical associations? *A.*—Not in Texas.

Q.—Did you in Arkansas? *A.*—Yes, up to the time I resigned from the county medical society and automatically I was out of the state and A. M. A.

Q.—You tried to get back in that society, isn't that true? *A.*—No, it is not true, and they can't show I ever made application to join.

Q.—Have you ever attended any medical conventions in the last fifteen years? *A.*—No, not last fifteen years.

Q.—Have you in the last twenty? *A.*—No, I haven't belonged to a medical society and I didn't care to push myself in.

Q.—You don't believe in tuberculosis clinics and medical conventions, do you? *A.*—I believe in medical conventions in certain things.

Q.—You don't believe in tuberculosis clinics? *A.*—No.

Q.—Do you belong to any special tuberculosis societies? *A.*—No, I don't belong to any medical societies.

Q.—Have you ever belonged to any special tuberculosis societies? *A.*—No, because I wasn't treating tuberculosis at the time I resigned from the medical societies.

Q.—Have you ever affiliated yourself with men treating tuberculosis? *A.*—No, never had any occasion to.

Q.—Do you believe that the United States Public Health Service knows anything about tuberculosis? *A.*—They all know how to make a diagnosis and tell you how long you are going to live and put you to bed and let you stay there.

Q.—Until you die? *A.*—A few get well.

Q.—Does the Veterans' Bureau know anything about tuberculosis? *A.*—They know more about getting the money than anything else.

Q.—That is your idea of that? *A.*—Yes.

Q.—They know more about getting the money than about treating and dealing with tuberculosis? *A.*—Repeat that.

Q.—I say, they know more about getting the money from whom? *A.*—From the people generally. You never hear from the National Tuberculosis Society until the latter part of November or December, and the papers publish what they are doing to exterminate the white plague.

Q.—My question was the Veterans' Bureau; do they know anything about tuberculosis? *A.*—I don't think they do.

Q.—How long have you had that idea? *A.*—I have had it a pretty good long time

Q.—It is your idea you are the only physician in El Paso that knows anything about the treatment of tuberculosis or correct way of handling it? *A.*—I didn't say that; I do say I am the only one giving drugs and getting results from the treatment.

Q.—Are you a member of the American National Red Cross? *A.*—No.

Q.—You don't believe in it? *A.*—I donate to them nearly every year.

Q.—You don't believe in it? *A.*—Oh, yes, I believe they do a good deal.

Q.—Do you believe in the work of the Red Cross in connection with tuberculosis? *A.*—Repeat that.

Q.—Do you believe in the work of the Red Cross in dealing with the tuberculosis situation? *A.*—That is not clear.

Q.—Why is it you can hear your own counsel and can't hear me?

***Judge Sweeney:*—Because I speak plainer.**

***The Court:*—Don't argue with the witness.**

Q.—You can hear your own counsel? *A.*—If you step up here I don't have to ask you to repeat.

Q.—I don't want my back to the jury. You can hear your own counsel? *A.*—Do what?

Q.—You can hear your own counsel? *A.*—I can hear Judge Sweeney but not Mr. Quaid.

Q.—And you insist upon my repeating the questions repeatedly to you? *A.*—What?

Q.—You insist upon my repeating the questions to you? *A.*—If I can't hear them, why should I answer something I don't understand?

Q.—You told us that you are very much pained and grieved by this telegram which DeWitt Wallace sent in January of 1938, is that correct? *A.*—That is correct.

Q.—Had you seen the Hruby report of 1921? *A.*—I didn't see Hruby's report until I read it in your answer to our petition.

Q.—You didn't see it when it was published in the Chicago *Examiner* in '21 or '22? *A.*—There was something published in the Chicago paper prior to that time and I wanted to answer it, and Holderness wasn't willing for me to do it; the next thing I saw, if you want me to tell you?

Q.—Go ahead. *A.*—Was in *Hygeia*, it stated two quacks—

Q.—Don't make a statement about what *Hygeia* stated. This telegram of January 1938 wasn't the first time your feelings had been hurt, is that correct? *A.*—That brought it right home, when it stated I was administering a dangerous fake.

Q.—You came in this court in 1921 and filed a suit for libel against Hendricks-Laws, claiming your feelings had been hurt? *A.*—Yes, and I went after them, too.

Q.—That suit was finally dismissed? *A.*—It was dismissed from the mere fact that I didn't have the money to come down here and fight it out.

Q.—You came into this Court in 1921 and filed a suit for libel against Hendricks and Laws, claiming your feelings had been hurt, did you not? *A.*—Yes, and I went after them, too.

Q.—It was dismissed? *A.*—It was dismissed only because I didn't have the money to fight it.

Q.—In that suit you claimed the same hurt feelings you are at the present time, didn't you? *A.*—Yes.

Q.—And that was eighteen years ago, in 1921? *A.*—That was in 1921.

Q.—But you didn't have money enough to fight it but you did have money enough to pay a doctor $250 a week to work for you? *A.*—Yes, we were making money then, until we got libeled.

Q.—Are you acquainted with DeWitt Wallace? *A.*—With Dewitt Wallace?

Q.—Yes. *A.*—No.

Q.—How long you—how long have you known of DeWitt Wallace? *A.*—I have been reading the *Reader's Digest* for quite a long while.

Q.—You never have met him and are not personally acquainted with him? *A.*—No.

Q.—Do you know anybody in Pleasantville, New York? *A.*—Not a soul.

Q.—You do not now and never have known any one there? *A.*—To the best of my knowlege and belief I do not.

Q.—You did know Mary Rose Bradford? *A.*—I met her here.

Q.—How did you happen to come in contact with her? *A.*—She asked me for a appointment and I went to see her.

Q.—At whose instance? *A.*—Miss Joteen Sweeney.

Q.—Judge Sweeney's daughter? *A.*—Yes.

Q.—At her instance an appointment was made with you for Mary Rose Bradford? *A.*—She did.

Q.—What was the purpose of that meeting? *A.*—I did not know what the purpose was. I met her. She asked me a great many questions about tuberculosis, about treatment and that was about all there was to it until I received the telegram that she got from DeWitt Wallace.

Q.—I believe you claim you did not know the purpose of her interviewing you? *A.*—I did not know when I went to see her.

Q.—You did not have any idea what that purpose was until you saw that telegram that DeWitt Wallace sent to her? *A.*—That was the first I knew she was going to attempt to write a story.

Q.—Was that telegram delivered to you by Mrs. Bradford or Miss Joteen Sweeney? *A.*—I don't remember who it was, but it was delivered.

Q.—Do you know about when it was delivered? *A.*—About the 25th, I think, of January '38.

Q.—That was about the day it was sent. Is that correct? *A.*—Yes.

Q.—You can't tell me who delivered it? *A.*—I do not remember who delivered it.

Q.—Where was it delivered? *A.*—I don't remember that. If I did I could tell you who delivered it.

Q.—Can you tell me the time of day, morning or afternoon? *A.*—No, I cannot.

Q.—You never did see Mrs. Bradford after that did you? *A.*—I never saw her again.

Q.—Did you know her before that? *A.*—No, I did not.

Q.—Did you know who she was at that time? *A.*—I knew that Bradford was a writer, was writing a book.

Q.—That is her husband, Roark Bradford? *A.*—Yes.

Q.—You did not know what her business was? *A.*—No, I did not. I just thought she was a housewife.

Q.—Dr. Brunson, you somewhere published a purported testimonial from a man named Frank Ehret of Roswell, New Mexico. Is that correct? *A.*—That is correct but he is not in Roswell, New Mexico.

Q.—Do you know where he is? *A.*—He is in Albuquerque.

Q.—Did you ever write to him? *A.*—I have written to him a good many times.

Q.—Do you recall at one time being placed under oath and testifying to a letter which you wrote to Frank Ehret? *A.*—What is it you want to know about it?

Q.—Do you remember having been placed under oath in the district attorney's office here some years ago and having testified with reference to a letter you sent to Frank Ehret? *A.*—Yes, with a check in it.

Q.—With a check of $20? *A.*—Yes.

Q.—You identified that letter at that time? *A.*—I did.

Q.—You identified a copy of it didn't you? (handing letter to witness) *A.*—The $20 check was my check I sent him.

Q.—You sent him that letter? *A.*—That is a copy of the letter.

Q.—And you so admitted under oath before the district attorney at the time? *A.*—Yes. I do not think that was breaking any law, and the Grand Jury didn't think so.

***Mr. Brown:*—We offer this letter in evidence, Your Honor.**

***The Court:*—There being no objection, it will be admitted.**

The letter was then received in evidence, marked Exhibit D-1, was read to the Jury and is in words and figures as follows:

(COPY)

ASA BRUNSON, M.D.
PRACTICE LIMITED TO TUBERCULOSIS
717-21 CAPLES BUILDING
EL PASO, TEXAS

July 18, 1929

Mr. Frank Ehret,
500 N. Richardson
Roswell, New Mexico.

I herewith enclose my check for twenty dollars, your commission on Miss Moore. You would have had this money before now, but we have written to you and our letters were returned, therefore, I did not know how to reach you and I wrote Mrs. Moore for your address. I received your letter, and now know how to reach you.

I certainly do appreciate your efforts in my behalf and assure you that every patient that you get for me, you will receive twenty dollars by return mail.

If it is convenient, I would like for you to see Miss Moore occasionally to see just how she is getting along.

It is hot as the devil here and very little news.

Trusting to hear from you soon, I am

Yours very truly,
Asa Brunson
ASA BRUNSON, M.D.

AB-AH

P.S. We have printed a booklet and have put in a list of cured patients and their addresses, so that you may write to them. Your name is among them, so I will appreciate your answering any inquiries. I am enclosing a booklet.

D-1

***The Court:*—What was the date of that?**

***Mr. Brown:*—July 18th, 1929.**

Q.—You believe it is entirely in keeping with medical ethics for a physician to have a secret formula which he advertises or has advertised and to use it in the treatment of patients, do you? *A.*—I am anxious to make the formula public to the world but not until I get a scientific investigation.

Q.—You heard the letter, you could get an investigation if you desired? *A.*—Do you suppose I want to send it to the enemy's camp? It would be condemned no matter what it was.

Q.—You condemn all the members of the American Medical Association as your enemies and in the enemy camp? *A.*—The ones in the office of the American Medical Association and as evidence they are they never answered a letter I wrote.

Q.—You have consistently declined to turn anything over to the Council on Pharmacy and Chemistry of the American Medical Association or that bureau, you have absolutely consistently refused to turn anything over to that Council? *A.*—Because I know they could not tell anything about it.

Q.—Answer my question. You have always refused? *A.*—They never asked for it.

Q.—You hear Dr. Fishbein's letter, you could get the investigation if you wanted it? *A.*—That was Mr. Ben Altheimer.

Q.—You have refused at any time to turn it over to the Association? *A.*—I couldn't get a reply from them.

Q.—Just answer my question, and you refuse to do it now? *A.*—I certainly wouldn't give it to the enemy now. That is against the Bible.

Q.—How do you make sputum tests? *A.*—I do not make them. I pay for having them made.

Q.—Whom do you have to make them? *A.*—I have Dr. George Turner make them, Waite to make them.

Q.—Who else? *A.*—Dr. Hummell.

Q.—In the past year how many sputum tests have you had made and by whom? *A.*—I couldn't answer that question, I don't remember.

Q.—As a matter of fact have you had any? *A.*—I don't know. I haven't been treating patients who can pay for any. They can't pay the $2—

Q.—Can you tell me of any sputum tests you have had made in the last two years, and if so, sputum of whom and what doctor made the tests? *A.*—I can't remember that. I suppose Dr. Turner could look at his files and tell how many I had made.

Q.—Do you know of a single one? *A.*—Yes.

Q.—What one? *A.*—I know of several.

Q.—Name them. *A.*—I know Mr. Robert Hamilton of Chillicothe, Texas. I had his sputum examined—

Q.—By whom?

***Mr. Sweeney:*—If Your Honor please, he does not permit him to answer the questions.**

***The Court:*—Permit him to answer before another question is asked. The Court still does not have the name.**

***Mr. Brown:*—A Mr. Hamilton from Chillicothe, Texas.**

A.—It was sometime two or three years ago. I would have to look at my own records to see.

Q.—You cannot name me more than one person whose sputum you had tested in the last year, offhand? *A.*—Does that have anything to do with this case?

***The Court:*—Mr. Witness, you will not ask questions of counsel or argue with counsel.**

***The Witness:*—I beg your pordan.**

Q.—This man Hamilton of Chillicothe, Texas, is the only one whose name you can remember in the past two years? *A.*—I do not try to remember that. You make a sputum test and forget it.

Q.—You have not had so many patients you cannot remember? *A.*—I have not had many patients in the last two or three years.

Q.—You have not had many in the past three or four years? *A.*—No, it has been drying up since 1930.

Q.—Since 1930 your practice has been drying up? *A.*—Been getting less and less each year.

Q.—That was before the DeWitt Wallace telegram was sent? *A.*—After the *Hygeia* article came out.

Q.—I am talking about the DeWitt Wallace telegram. *A.*—It just began drying up that much more, shrinking up that much more.

Q.—There was not much to shrink since 1938 in January was there? *A.*—Since when?

Q.—January 1938. *A.*—I told you in the deposition what I made last year $1,790.

Q.—It was approximately the same amount the previous year? *A.*—The previous year was a little more than that. That was '37. I think it was about $2,400 or $2,500.

Q.—That was gross you testified in your deposition? *A.*—Gross?

Q.—Yes. *A.*—Absolutely.

Q.—And in 1938 a little less than $1,800? *A.*—Yes.

Q.—Did you ever submit your tests to any board of Army Doctors? *A.*—I never did, no.

Q.—Do you recall anything with reference to an offer of 100 patients to be treated by them and a hundred patients to be treated generally? *A.*—I wrote them and made them that proposition and they wrote to the army and I wrote to the army and they did not answer my questions.

Q.—Do you recall whether the United States Surgeon General did make an investigation and you did turn over eleven patients for that purpose? *A.*—That was Holderness.

Q.—Did the Surgeon turn over eleven to you to be treated? *A.*—No, they never sent any to me to be treated.

Q.—Did the Army ever try your treatment? *A.*—No, they never did.

Q.—They never did have any patients from William Beaumont take the treatment? *A.*—They never did.

Q.—You are certain about that? *A.*—I know it.

Q.—How about the Holderness treatment? *A.*—The Holderness treatment—they were ordered by the Secretary of War and I think they wrote to the colonel in charge at William Beaumont and he sent three officers and they informed us they were going to investigate the treatment. I said that that was what we wanted. They came up, examined two or three patients each morning for three mornings. Then they told me it was very hard for them to come to town and they would send a conveyance to get the patients and we could send out four or five every day and they would send them back. They didn't have the road paved to William Beaumont for about ten or twelve blocks and it was very rough and the patients were treated rough in making the examination and after the third day, which made six days altogether, the patients would refuse to go out there. Now they were our patients, private patients, paying for treatment and we could not make them go out there and Major Scott—I believe he is a colonel now—the ranking officer—

Q.—Let us not go further with that. The upshot of it was the matter was dropped? *A.*—Yes.

Q.—And the Medical Department never did take up the Holderness or the Brunson treatment? *A.*—They did not take up mine and did not make much investigation of the Holderness treatment.

Q.—They discarded all transactions with the Holderness treatment from that time? *A.*—Yes.

Q.—You do not know what report they made on it yourself, do you? *A.*—No, I never did.

Q.—Prior to January 1938 had you ever met Dr. Fishbein? *A.*—Never had.

Q.—You would not have known him if you had seen him? *A.*—I think I would on account of his picture which I have seen.

Q.—But you had never met him? *A.*—Not personally.

Q.—When did you first meet him or see him personally? *A.*—The first time I saw him personally was this morning.

Q.—In this Court room? *A.*—Yes.

Q.—And you never had personal contact with him? *A.*—Never had any personal contact at all.

Q.—You do know that he is an editor of the American Medical Association JOURNAL and has been for a good many years? *A.*—He has been since Dr. Simmons was retired in 1924.

Q.—And he has been a number of years editor of *Hygeia?* *A.*—He has been since 1924. He was assistant to Dr. Simmons from '13 until he took Dr. Simmons's job.

Q.—You do not know what, if any, connection he has with *Reader's Digest* now? *A.*—No, I do not.

Q.—Doctor, when did you say that you first met Dr. Hruby? *A.*—Dr. Hruby?

Q.—Yes, sir. *A.*—It was in the summer of '21; I don't know whether it was the latter part of July or the first part of August.

Q.—Up to that time were you personally acquainted with him? *A.*—No, I never heard of him until he came into the office.

Q.—You did find out who he was? *A.*—Yes, very much so.

Q.—Do you know what his occupation was in Chicago or what connections he had in Chicago? *A.*—Well, he just informed me that when he came down he was a doctor sent down to investigate the Holderness treatment.

Q.—Sent by whom? *A.*—I don't remember his saying who sent him.

Q.—Did he tell you what institution he was connected with? *A.*—No. He was quite a young man at that time; I just thought he was an intern for one of those hospitals.

Q.—Did you know that he was the head of the Chicago Municipal Tuberculosis Sanitarium? *A.*—I didn't know at that time, and he didn't tell me.

Q.—You found out afterwards, didn't you? *A.*—I found out afterwards.

Q.—Do you know how long he had been connected with that institution? *A.*—No, I do not.

Q.—He still is connected with it, is he not? *A.*—Not that I know of.

Q.—Do you know how long prior to 1921 that he had been connected with that institution? *A.*—Are you asking me how long he had been?

Q.—Do you know? *A.*—I really don't know.

Q.—What time of day was it you first saw him, do you recall? A.—It was in the morning, I think about 9:30.

Q.—Whereabouts? *A.*—In the office of Holderness & Brunson.

Q.—In— *A.*—In the El Paso National Bank Building.

Q.—Now, whom did he see? *A.*—What?

Q.—Whom did he see? *A.*—Who did he see?

Q.—Yes, whom did he see? *A.*—Oh, he met everybody that was up there.

Q.—Whom did he interview, talk to and examine? *A.*—He interviewed me and also interviewed Holderness.

Q.—And who else? *A.*—Well, from a medical standpoint he didn't interview any one else. I think possibly he talked to—I don't know whether it was Dr. Thomas, I believe, and we just introduced him to the others that were working there.

Q.—Did he see Griffin, a man named Griffin, who had been a reporter of the *Times?* *A.*—Who was that?

Q.—Did he see a man named Griffin, who had been a reporter for the *Times?* *A.*—Did I know him?

Q.—I say did he see him? *A.*—He said he saw him. He didn't bring him. He stated in his report that Griffin brought him up and introduced him to me, but he didn't do it. He came up by himself.

Q.—Griffin was a patient of yours? *A.*—Griffin was a patient of mine, yes.

Q.—Did you take Dr. Hruby around to see any of your patients? *A.*—I took him to see a Mr. Martin, is the only one I remember now.

Q.—Where is Griffin now? *A.*—He is dead.

Q.—Do you know when he died? *A.*—He died in Mexico City, and I never did know just what the cause was.

Q.—Mr. Martin, who was he? *A.*—He was a patient. We treated him out at his home for quite a while. well, I think about two months, before he was able to come to the office.

Q.—Dr. Hruby talked to him? *A.*—Dr. Hruby went out with me and talked to him just a short time.

Q.—He made an examination of him? *A.*—No, he didn't make an examination of him.

Q.—Are you positive about that? *A.*—I know he did not. Martin was a very peculiar fellow; he wouldn't let him examine him.

Q.—You examined him? *A.*—I never examined him.

Q.—You never examined him, but you treated him? *A.*—A doctor that was working for us was doing the treating. I drove Dr. Hruby out there because I knew where he lived.

Q.—You said he was your patient? *A.*—Certainly, he was under our treatment.

Q.—But you never did examine him? *A.*—No.

Q.—Did you go with Dr. Hruby to see a man named McLean, who was a reporter? *A.*—No, Hruby called on McLean himself. He was working for the *Times* at the time Griffin was there. They were both working for the *Times.*

Q.—You don't know what transpired while Dr. Hruby was with McLean? *A.*—No.

Q.—Do you know a man by the name of Mr. McCloud? *A.*—McCloud?

Q.—Yes, a patient of yours, was he not? *A.*—Yes, it seems to me that I treated a Mrs. McCloud.

Q.—Did you take Dr. Hruby to see either a man or woman by the name of McCloud? *A.*—I don't remember if I did.

Q.—How many people did you take him to see? *A.*—I don't remember how many people I took him to see, but when he was examining patients in my office—

Q.—Who was examining them? *A.*—Hruby.

Q.—How many did he examine there? *A.*—Well, I don't know just how many. There was one he examined—I didn't think very much of his ability for his examinations, and I got our bookkeeper to go in there, that was a strong healthy fellow, and Hruby found he had tuberculosis in the apex of both lungs, and he was never sick a day in his life. R. E. McGaughy was his name, if you want to know his name. He was our bookkeeper.

Q.—Where is he? *A.*—Pine Bluff, Arkansas.

Q.—Where is Martin? *A.*—He has gone to his great reward.

Q.—What about McLean? *A.*—McLean is dead.

Q.—Griffin is dead? *A.*—Griffin died in Mexico City.

Q.—Is McCloud dead? *A.*—I don't know whether McCloud is dead or not. I haven't heard from the McClouds in sixteen or seventeen years.

Q.—But these people were all your patients? *A.*—They were patients. We were furnishing medicine and had a doctor employed who was prescribing it.

Q.—Whose treatments, your's or Holderness's? *A.*—Dr. Holderness's treatment.

Q.—At that time you had quite a few patients staying at Hendricks-Laws Sanitarium, did you not? *A.*—No.

Q.—Do you know whether Dr. Hruby went out to Hendricks-Laws? *A.*—I suppose he went all around.

Q.—Do you know whether at that time there were people in Hendricks-Laws whom you had treated previously? *A.*—I don't remember. I don't know whether there were or not.

Q.—You don't know whether Dr. Hruby visited them there? *A.*—I don't know whether he even went to Hendricks & Laws.

Q.—You don't know whether he interviewed any patients out there who had been your patients? *A.*—No, I do not.

Q.—Dr. Brunson, where did you have your office in Pine Bluff, Arkansas? *A.*—I had my office in several places.

Q.—Name them. *A.*—Reinberger & Collier, Sewell & Ancrum, and the Citizens Bank Building, an office over the Citizens Bank Building.

Q.—How long did you have an office over the Reinberger & Collier Drug Store? *A.*—I don't know that I could tell you exactly how long I was there. I think though about a year.

Q.—You had a special arrangement with them under which you were to get rent free in consideration of your prescriptions going to that drug store? *A.*—That was a rule among the doctors where they had offices over a drug store, they didn't charge them any rent.

Q.—And that drug store put out a number of remedies or prescriptions under the name of Dr. Brunson's Remedies, did it not? *A.*—Reinberger & Collier did?

Q.—Yes. *A.*—I found that out after Mr. McCoy went down there.

Q.—During that period of time your offices were over their drug store didn't they put out prescriptions under your name? *A.*—They only put out one prescription when I was over their drug store under my name.

Q.—What was that? *A.*—Brunson's Famous Prescription.

Q.—Was that the prescription in which a card was given by you, or by them, in consideration of the patient buying the remedy you would give them a free treatment? *A.*—No, I don't remember that.

Q.—Didn't you testify with reference to a free examination, didn't you testify to that in your deposition? *A.*—I don't think I did.

Q.—Do you recall this question when your deposition was taken on March 8th of this year: *Q.*—"It was a fact they did call it 'Brunson's Famous Prescription?'" *A.*—"They did call it 'Brunson's Famous Prescription.'" *Q.*—"I will ask you, Doctor, if, in this same proceeding, that is, the case whose title I have given, you were asked this question by Mr. Danaher, your attorney, on direct examination, and if you gave this answer": *Q.*—"Doctor, I show you a card, which reads as follows: 'This card certifies that the bearer has purchased one bottle of Dr. Brunson's Famous Prescription and is entitled to one free consultation with Dr. Brunson. Office Fourth and Main, over Reinberger & Collier's Drug Store.' Did you ever see one of these cards before?" *A.*—"Yes, sir." Do you recall whether you so testified in that case? *A.*—That has been twenty-three or four years ago, and I just can't remember everything that happened at that time.

Q.—You won't deny under oath that you did so testify, will you? *A.*—If I answered it it was true.

Q.—But you do not deny that you answered it that way? *A.*—I won't deny it, no.

Q.—You did have some cards of that character? *A.*—I never had any cards myself at all.

Q.—You did honor cards of that character issued by Reinberger and Collier? *A.*—I understand since this case came up that Reinberger & Collier got out some cards, and I told you when my depositions were taken I did not remember much about it, it had been so long ago.

Q.—But you do not remember whether you had that sort of arrangement with them? *A.*—I never had any such arrangement. I think they got that out themselves and told me, and asked me if I wouldn't give them an examination.

Q.—If you did give an examination of that sort wouldn't you remember it? *A.*—I don't know I ever made an examination of any one that had a card.

Q.—But you don't deny it? *A.*—I don't remember it.

Tuesday, May 30, 1939

Dr. Brunson took the stand.

Q.—Dr. Brunson, do you know of any one in El Paso who knew of the contents of any of these telegrams that are involved in this suit prior to the time that the suit was filed? *A.*—Do I know whether any one else knew?

Q.—Yes. *A.*—I don't.

Q.—And you can't name a single person who knew of the contents of this telegram before the suit was filed other than yourself and Rose Marie Bradford—Rose Mary Bradford? *A.*—My attorneys, but I didn't know any one else that saw it.

Q.—The basis of your preparation or solution is some oil, it is an oily substance? *A.*—I refuse to answer that question.

Q.—Didn't you admit in your deposition that it was an oily solution? *A.*—Well, it is an oily solution.

Q.—Will you tell us whether the basis is a mineral oil, animal oil or vegetable oil? *A.*—Mineral oil.

Q.—And you decline to go any further, then? *A.*—Yes.

Q.—What were the educational requirements of this college in Memphis? *A.*—I will have to ask you to repeat that question.

Q.—What were the educational requirements of this college in Memphis? *A.*—The same as any other first class medical college.

Q.—Didn't you testify in your deposition, on March 8 of this year, that there were no educational requirements and that you weren't required to take any examination of any nature prior to entering that school? *A.*—That is right.

Q.—That is a fact. And you didn't at that time have a diploma from any school, did you? *A.*—Didn't have what?

Q.—At that time that you entered that college in Memphis, you did not have any diploma from any school? *A.*—No, I didn't.

Q.—You did not. There were no examinations required of any one to enter that school, were there? *A.*—Yes, a great many had to stand examinations.

Q.—But you didn't take any? *A.*—I didn't because I told them where I had been to school.

Q.—And at the time you got your license in Arkansas, you weren't required to take any examination, were you? *A.*—I put my diploma on record.

Q.—From that school? *A.*—From that school.

Q.—And that is all you were required to do? *A.*—That is all the Board of Medical Examiners required.

Q.—And you got a county license, was it? *A.*—A county license.

Q.—Did you ever take a medical examination for a license to practice medicine? *A.*—No, I didn't have to.

Q.—How many treatments do you give daily in administering your treatment? *A.*—Twice daily.

Q.—How long does each one of those treatments take? *A.*—The time for them to take ten inhalations.

Q.—They just take ten whiffs of that vapor? *A.*—Yes, sir.

Q.—And then leave your office? *A.*—Yes.

Q.—You require them to come to your office? *A.*—Twice a day if they are able to come.

Q.—Do you regard that as being consistent with the rest cure? *A.*—It is consistent. As far as the rest cure is concerned, they don't require rest when a patient is not running a temperature.

Q.—Well, do you only treat those who are not running temperature? *A.*—No, the temperature subsides in a week or ten days after I begin treating them.

Q.—But you require them, during that period of time, to come to your office twice a day? *A.*—Until I determine their temperature is going to continue, then I put them to bed.

Q.—How do you determine whether that treatment is going to continue or temperature is going to continue, how do you determine that fact? *A.*—By taking their temperature with a thermometer.

Q.—Then you put them to bed. Do you treat them in bed? *A.*—Until their temperature is broken.

Q.—Isn't it a fact, you administer your treatment only in your office? *A.*—No, I give it in the home.

Q.—Can you tell me of any person to whom you have administered treatment in their home during the past twelve months? *A.*—I haven't had a bed patient in the past twelve months.

Q.—How many patients are you treating at the present time? *A.*—I am treating five patients for charity's sake.

Q.—How many patients were you treating six months ago? *A.*—Well, that depends on what day that was, I think I was treating eight.

Q.—How many patients did you have twelve months ago? *A.*—About the same number.

Q.—How many did you have twenty-four months ago? *A.*—Well, now, that is a very hard question to ask, I mean to answer, I don't remember.

Q.—Approximately how many? *A.*—Oh, eight or ten.

Q.—Then the number of patients you have had during the past two or three years has been around eight or ten? *A.*—Eight or ten.

Q.—Ten would be the maximum amount or maximum number? *A.*—I may have had twelve or fifteen for a short time.

Q.—But you didn't treat them regularly? *A.*—Yes, I treated them twice a day as long as they were taking treatments.

Q.—How many patients did you have three years ago? *A.*—Eight or ten.

Q.—What do you say was the reason you quit the Holderness treatment? *A.*—I quit the Holderness treatment because I became dissatisfied about his not being willing to answer criticism.

Q.—You believed in advertising, didn't you? *A.*—No.

Q.—You did advertise? *A.*—I did advertise, but I don't believe in it.

Q.—Didn't you testify on March 8th, this year, in your deposition, that the reason you ceased to use the so-called Holderness treatment in May 1922 was because you weren't making enough to suit you? *A.*—That was after I sold out to Harris, I discontinued with Holderness, but was using his medicine, some time in March '22.

Q.—Didn't you testify yesterday you agreed with him, when you dissolved your relation with him, you would not use his treatment further? *A.*—I did.

Q.—Yet you did use it up to May 1922? *A.*—I bought medicine from him, that was the agreement.

Q.—Didn't you testify on March 8th, this year, that the reason you quit the Holderness treatment for tuberculosis in May 1922 was "I wasn't making enough money to pay for the medicine I had to buy from Holderness"? *A.*—That is a fact.

Q.—Then you were having your financial troubles in 1922, weren't you? *A.*—I wasn't having financial troubles, I wasn't making any money and I wouldn't continue.

Q.—Now, Dr. Brunson, do you know a man named Frank P. O'Hara? *A.*—The stool pigeon that was sent down here?

Q.—I have asked you if you know a man named Frank P. O'Hara? *A.*—I do.

Q.—You treated him in May and June of 1938, did you not? *A.*—I treated him for forty-five days in May and June.

Q.—How much did he pay you? *A.*—He paid me at the rate of $60 a month.

Q.—That was $120 or $90 that he paid you for the entire treatment? *A.*—He paid me $120 and I sold him two bottles of medicine, and gave him credit on the two bottles of medicine for $30.

Q.—The bottles of medicine you gave him were six ounce vials? *A.*—What is that?

Q.—The bottles of medicine you gave him were six ounce vials? *A.*—Yes, sir.

Q.—And, in addition to that, when he made a little trip to Chihuahua you gave him some additional medicine in a small bottle? *A.*—I did what?

Q.—You gave him some additional medicine in a small bottle? *A.*—When he went down in Mexico, I wanted him to continue the treatment, and I gave him enough medicine to fill his atomizer; he didn't intend to be gone but about four days.

Q.—How much did you give him at that time? *A.*—I suppose about an ounce or ounce and a quarter.

Q.—The other two bottles you gave him about the 24th of June 1938? *A.*—The evening before he left.

Q.—They were true solutions of yours? *A.*—It was the same solution.

Q.—Exactly the same solution you used then and use now? *A.*—Same solution.

Q.—How long have you been using that identical solution? *A.*—I have been using it since the first part of July 1922.

Q.—You did, in addition to furnishing him with some vials of the solution, sell him some equipment or have him purchase some equipment? *A.*—He asked me to purchase for him an oxygen gage and other paraphernalia that went with it, so that he could buy a tank of oxygen when he got to Chicago and continue the use of the medicine.

Q.—Do you know what was paid for that? *A.*—$24 and something.

Q.—He paid you all together somewhere around 160 odd dollars, did he not? *A.*—I think a little more than that, buying that outfit for him.

Q.—The outfit that you did equip him with was the same that—the same character of equipment that you use? *A.*—It is the same I use in my office.

Q.—Same manufacturer? *A.*—I don't know whether the same manufacturer, it was an oxygen gage.

Q.—You recommended it to him? *A.*—Yes.

Q.—Of what did that equipment consists? *A.*—Well, I just told you, an oxygen gage, rubber hose and a cutoff, and a cutoff that fits in the atomizer point, that is all there is to it.

Q.—Was that gage a pressure gage? *A.*—It controls the pressure.

Q.—What pressure do you use in connection with administering this treatment? *A.*—From 35 to 40 pounds.

Q.—From 35 to 40 pounds per square inch? *A.*—What is that?

Q.—What do you mean by 35 to 40 pounds? *A.*—Some I use just 35 pounds, some 40, some patients don't like for it to be such hard pressure.

Q.—Thirty-five to 40 pounds per square inch, is that the pressure? *A.*—That is the way it is figured.

Q.—You blow this vapor into the mouth or nostrils at a pressure of 35 to 40 pounds? *A.*—That is in the mouth.

Q.—What pressure do you use in the nostrils? *A.*—I use about from 5 to 7½ pounds.

Q.—Did you have any of your patients use your treatment in their homes, administer it themselves? *A.*—Yes.

Q.—Whom did you have here in El Paso any time making use of your home treatment within the past two years? *A.*—Well, I have had a good many of them.

Q.—In the past two years? *A.*—Yes.

Q.—In their homes? *A.*—Yes.

Q.—Who were they? *A.*—Fred Knollenberg, Mr. H. P. Talley, Mr. Lozier. Those treatments were for colds and sore throats.

Q.—They weren't for tuberculosis, then? *A.*—No.

Q.—What are the symptoms of tuberculosis? *A.*—I answered that yesterday afternoon.

Q.—You answered in response to your own counsel.

***The Court:*—The question he asked may be answered.**

Q.—What are the symptoms of tuberculosis? *A.*—Different people have different symptoms; usually the first symptom they begin feeling bad in the afternoon, in a short time they begin coughing, as soon as the pus germs become active they begin running temperature.

Q.—What else, what other symptoms do they have? *A.*—What other symptoms?

Q.—Yes. *A.*—Expectorating mucus and pus, and the tubercular bacilli in the sputum.

Q.—What are the objective—are those all objective symptoms? *A.*—All except the sputum examination.

Q.—How do you distinguish between objective and subjective symptoms? *A.*—What is that?

Q.—How do you distinguish between the terms objective and subjective when you refer to symptoms? *A.*—Well, the objective symptoms are the symptoms that you see when you look a person over, the other is x-ray or microscope.

Q.—Do you classify what you find in the sputum as objective or subjective? *A.*—That is subjective; it could be both subjective and objective.

Q.—What do you mean by that? *A.*—What do I mean?

Q.—What do you mean by saying it could be both? *A.*—Well, the objective symptom is examining the sputum and finding the germ, the subjective symptom for that particular examination is about the same thing.

Q.—Then the subjective and objective symptoms are the same in that instance? *A.*—No, not always, but in that particular case they are.

Q.—When are they different? *A.*—Well, for instance, if you examine a person, have a sputum examination, and don't find tubercular bacilli, still they are running every symptom of tuberculosis, many, many patients are treated for tuberculosis and you never find the tubercular bacilli.

Q.—Generally speaking, what is a subjective symptom? *A.*—It is an examination you make by stethoscope, examination you make by palpation.

Q.—Isn't that objective? *A.*—Well, I don't know.

Q.—Can you just distinguish now, Doctor, to us the difference between objective and subjective symptoms, as a physician? *A.*—I can't give the exact definition of them.

Q.—You have been practicing medicine how long? *A.*—Forty years.

Q.—And can't tell this court and jury the difference between subjective and objective symptoms? *A.*—I don't think that has anything to do with the case.

***The Court:*—In the first place, counsel will not argue with the witness. The witness will not undertake, in answer to a question, to say that has nothing to do with the case, whether you should answer the question or not.**
***Witness:*—I beg pardon, Judge, I didn't know it.**

Q.—Now, Doctor, you can't tell us the difference between subjective and objective symptoms? *A.*—I don't know that I can give the difference, but I can examine a patient and tell you about it.

Q.—You don't want to undertake to tell us what subjective symptoms are? *A.*—Will you put that down that I can't answer that question.

Q.—You want to put it down you can't answer what objective symptoms are? *A.*—I told you what the objective symptoms were.

Q.—You also want to put it down that you can't distinguish between objective and subjective symptoms? *A.*—I can't give you the definition exactly.

Q.—You can't distinguish between the two? *A.*—Can't do what?

Q.—I say, you can't distinguish between the two? *A.*—Yes, objective symptoms are the symptoms you get from observation and examining your patient with a stethoscope. Subjective symptoms are your temperature and finding the tubercular bacilli in the sputum.

Q.—All right, can you see the tubercular bacilli in the sputum? *A.*—What?

Q.—Can you see the tubercular bacilli? *A.*—Put under a microscope I can.

Q.—You can't see it with the naked eye? *A.*—No.

Q.—Can you tell anything about whether there are bacilli in the sputum with the naked eye? *A.*—Absolutely not.

Q.—Have you a microscope in your office? *A.*—No.

Q.—Then you don't make any analysis or examination of the sputum yourself? *A.*—No, I have that done at the laboratory.

Q.—What other diseases do you treat besides tuberculosis, colds and bronchial troubles? *A.*—I treat any disease of the lungs or throat with the exception of cancer.

Q.—Do you classify yourself as a tuberculosis specialist? *A.*—I think I am.

Q.—How long have you been so classifying yourself? *A.*—How long what?

Q.—How long have you been so classifying yourself? *A.*—Since 1920.

Q.—Is there a slight cough in all cases of tuberculosis? *A.*—Is there what?

Q.—You testified a cough was one of the symptoms of tuberculosis? *A.*—Yes.

Q.—Is a cough always a symptom? *A.*—I don't think I have ever seen a patient that didn't cough.

Q.—Would you then say a cough is always a symptom? *A.*—Yes—you can have a cough from bronchitis just the same as from tuberculosis.

Q.—But a cough is always a symptom of tuberculosis? *A.*—Yes.

Q.—What are rales? *A.*—What are rales?

Q.—Yes. *A.*—All right, I can explain that to you. The secretion comes into the air cells and, at the end of expiration, those cells close; when there is an inspiration, they are pulled apart to let the air in and it makes a cracking sound.

Q.—How do you classify rales? *A.*—You mean the different kinds?

Q.—Yes. *A.*—We have a subcrepitant rale, that comes from the air cells.

Q.—What is that? *A.*—One that makes a crepitant sound, just like pulling fly paper apart, you can hear the air going in and the cells open.

Q.—That is the way you illustrate what constitutes a crepitant rale? *A.*—Yes.

Q.—What other kinds of rales are there? *A.*—Crepitant, subcrepitant, mucous rale.

Q.—What is a mucous rale? *A.*—A mucous rale is in the larger bronchial tubes, you can hear that when breathing and the lung is full of secretion.

Q.—What is a cell? *A.*—What?

Q.—What is a cell? *A.*—A cell?

Q.—C-e-l-l. *A.*—That is an opening, air cell, a small microscopic opening in the lung.

Q.—How do you say that those cells operate in the case of a crepitant rale? A.—When you have a crepitant rale, those cells, where the lung if affected, where it has pus in the lung, at the end of inspiration I told you that they folded up, and on expiration they open, and pulling that sticky mucus and pus apart makes a cracking sound.

Q.—What is a subcrepitant rale? A.—That is in the air vesicle.

Q.—What is an air vesicle? A.—An air vesicle is a part that contains air when you breathe it down.

Q.—Is there any distinction between that and a cell? A.—Well, it is the same thing.

Q.—Have you ever treated a case of tuberculosis of the larynx? A.—What?

Q.—Tuberculosis of the larynx? A.—Of the larynx?

Q.—Yes. A.—Yes.

Q.—What is the larynx? A.—The larynx is part of the throat, the larynx and pharynx, and the pharynx enters in the trachea and the larynx into the esophagus.

Q.—How do you determine whether a person has a case of tuberculosis of the larynx? A.—What?

Q.—How do you determine whether a person has a case of tuberculosis of the larynx? A.—You can see the tubercles that are formed by the tubercular bacilli.

Q.—How do you see them? A.—How do I treat them?

Q.—How do you see them? A.—Oh, the tubercles that are formed are not hard to see, you can see those with the naked eye.

Q.—How do you treat that kind of a case? A.—I treat it with medicine, just like tuberculosis, except I spray the throat more than I give inhalation.

Q.—You don't give them inhalation so much for tuberculosis of the larynx? A.—I do, I give inhalation because they always invariably have a lung infection when they have tuberculosis of the throat.

Q.—The treatment in the case of tuberculosis of the larynx is sort of direct application? A.—I give direct application and you might say indirect application.

Q.—What do you mean by direct application? A.—In direct application they do not breathe while I am spraying the throat.

Q.—How do you examine the larynx? A.—How is that?

Q.—How do you examine the larynx? A.—You can use a tongue depressor and look at it.

Q.—You look at it with you own eye, open the mouth and look at it? A.—Yes, and if I am very doubtful if they have tuberculosis I get some of the mucus accumulated in the larynx and put it under a microscope.

Q.—Do you do anything else in connection with the examination of the larynx? A.—That is all that is necessary.

Q.—You would call that a complete examination? A.—Yes.

Q.—How do you say you recognize such cases? A.—What?

Q.—How do you say you recognize such cases? A.—You mean tuberculosis of the larynx?

Q.—Yes. A.—You can see the tubercles and they have inflamed, red, fiery throats, very sore; usually they run a high temperature, higher with tuberculosis of the throat than with tuberculosis of the lung.

Q.—And how long a time do you treat those cases? A.—Until they get well.

Q.—How long does that take? A.—That all depends on how bad the condition is. That is the hardest form of tuberculosis to treat.

Q.—What is the general length of time you would say you would take in a case of that sort? A.—I did not understand.

Q.—What is the general length of time you would say you would take in a case of that sort? A.—I have not treated very many cases of tuberculosis of the throat. We do not have near as many cases as we do tuberculosis of the lung. I have treated cases and never did them any good at all. I have treated cases where they apparently got well.

Q.—We have discussed crepitant, subcrepitant and mucous rales. What other kinds are there? A.—There are a number of different rales.

Q.—Name some of them. A.—Crepitant, subcrepitant, mucous, sonorous.

Q.—What is a sonorous rale? A.—That is kind of a musical rale.

Q.—How do you distinguish between those four classes of rales you have mentioned? A.—That is not hard to do. In the sonorous rale you get a musical rale. You hear the mucous rale in the small bronchi, and the crepitant in the still smaller and the subcrepitant in the air cells or vesicles.

Q.—What instrument do you use? A.—Stethoscope.

Q.—You likened the stethoscope, yesterday, to a telephone did you not? A.—As far as hearing is concerned, yes.

Q.—The difference between the two is in one instance the stethoscope only conveys sound and the telephone conveys and magnifies sound? A.—I only meant in hearing well.

Q.—Then the stethoscope does not operate like a telephone in amplifying sound? A.—It makes the sound much louder in using the stethoscope. Up to about 1900 we did use just our ear and there is not much better than that now.

Q.—You think there is nothing better than your hearing to determine those factors? A.—I can tell them.

Q.—What other rales? A.—I can't name all of them. I have named the important ones.

Q.—You cannot at this time give me the names of more than those four, the crepitant, subcrepitant, mucous and sonorous? A.—That covers the field.

Q.—Can't you think of any other at the present time? A.—I think that covers the whole thing.

Q.—How do you distinguish the difference between tuberculosis and silicosis? A.—What is that?

Q.—How do you distinguish the difference between tuberculosis and silicosis? A.—In tuberculosis you find the germ and silicosis, that is a disease that is caused from breathing microscopic parts of stone. A stone worker.

Q.—How do you distinguish whether a person has tuberculosis or siliosis. A.—What?

Q.—How do you distinguish whether a person has silicosis? A.—We get that a great deal from the history and symptoms. In silicosis before the tuberculosis manifests itself or the pus germ becomes manifest they do not run a temperature. They have labored respiration.

Q.—But, Doctor, you still have not told how you distinguish between the two. A.—I have told you in the case of silicosis they do not run a temperature until they develop tuberculosis or until the pus germ becomes prevalent and they begin absorbing pus. Then the diagnosis is a little bit hard to make unless you have the history of those cases.

Q.—You say in silicosis they do not run temperature? A.—They run temperature when they become infected with pus. Pus is the only thing that causes you to run temperature.

Q.—Didn't you say a while ago that tuberculous patients also run a temperature, that was one of the determining symptoms? A.—They do for a certain length of time. I have had patients for a number of years that did not run a temperature; they were subnormal.

Q.—Do you make the statement it is a fact that a silicosis patient does not run temperature and that is the distinguishing fact in tuberculosis? A.—I have never treated a case of silicosis, only read of it.

Q.—You do not know from actual experience about silicosis? A.—No, but I could detect it.

Q.—Do you know whether they have rales in silicosis? A.—You have rales after the mixed infection begins.

Q.—But not until that time? A.—You get a wheezing sound, something on the order of asthma.

Q.—The only difference in one instance they run temperature and the other they do not? A.—In silicosis they will run temperature as soon as it becomes infected with the pus germ.

Q.—How do you distinguish between silicosis and tuberculosis before that stage is reached? A.—That is very easy. You get that as he makes a wheezy sound.

Q.—Do you rely on the subjective or objective symptoms? A.—I rely on both.

Q.—Pneumonitis gives the same symptoms as tuberculosis or silicosis? A.—Are the symptoms the same?

Q.—Pneumonitis gives the same symptoms as tuberculosis or silicosis? A.—It differs as I told you.

Q.—I am now asking about pneumonitis. A.—The symptoms of silicosis—

***The Court:*—The witness does not understand the question.**

Q.—What are the symptoms of pneumonitis? A.—That is pneumonia.

Q.—How do you distinguish between that? A.—If you have a typical case of pneumonia you first have a consolidation, a large chill, a temperature, you have a consolidation of the area affected, you have pleuritic pain.

Q.—What is the difference between what you have now described and a chronic inflammation of the lung? A.—You mean a chronic inflammation from what disease?

Q.—Inflammation of the lung. A.—I have not that clear.

Q.—What is the difference between what you have now described and a chronic inflammation of the lung? A.—A chronic condition is a condition that lasts quite a while and an acute condition when it first begins.

Q.—And that is the distinction you want to make at the present time, you want to rest upon that distinction at the present time? *A.*—Yes.

Q.—Do your patients need rest after the temperature becomes normal? *A.*—They need more rest than a well person would need, yes.

Q.—What is a fibrosis of the lung? *A.*—Fibrosis condition.

Q.—Fibrosis? *A.*—That is where fibrin forms in the lung.

Q.—What causes it? *A.*—Tuberculosis.

Mr. Sweeney:—**If it please the Court, Dr. Fishbein is talking loud enough for me to hear him on the questions he is suggesting to the counsel. I can hear him clear over here. I suggest he talk in a lower tone of voice.**

The Court:—**He may be seated in such a manner with counsel at the table so that the jurors will not hear him. He may, of course, have the privilege of making suggestions to counsel as to questions that may be asked but in a manner not to be heard by the jurors.**

Q.—Does tuberculosis produce fibrosis of the lungs? *A.*—Yes.

Q.—Is there anything else that produces it? *A.*—Pus infection will do it.

Q.—Could any other condition that produces fibrosis in the lung cause these same conditions you describe? *A.*—I will have to ask you to repeat.

Q.—Could any other condition that produces fibrosis in the lung cause these same conditions you describe; do fibrotic changes in the lung cause the same symptoms you have described? *A.*—Any other disease that causes fibrotic condition of the lung other than I described?

Q.—Yes. *A.*—I don't know any other.

Q.—You do not think it is difficult to tell the difference in different kinds of rales? *A.*—A person who has had experience, it is easy to tell.

Q.—What do coarse rales signifiy? *A.*—That is a crepitant rale you might say.

Q.—What is a sibilant rale? *A.*—I have answered that before. That is a musical rale.

Q.—You say the coarse rale is the same thing as a crepitant rale? *A.*—Yes.

Q.—What does it signify? *A.*—It signifies they have an infection, there is a poison, infection in the lung.

Q.—And what does a sibilant rale signify? *A.*—The same thing.

Q.—They both amount to the same thing? *A.*—They both show there is an infection.

Q.—Yesterday you said your gross income for 1938 was $1,795? *A.*—It was $1,795.50 if you want it accurate.

Q.—You testified on March 8th of this year that since 1930 or 1931 your gross income had never exceeded $3,000 in any one year did you not? *A.*—From '31?

Q.—Yes. *A.*—No, it was more than that in '31 and in '32.

Q.—Didn't you testify on March 8th this year in your deposition since '30 or '31 your gross income had never exceeded $3,000?

Mr. Quaid:—**If Your Honor please, I think that that is the wrong way to refresh the witness's memory. If it is a question of impeachment he ought to ask the question of March 8th and give the answer and see if the witness wants to testify to that now. I think it is the wrong line of testimony.**

Mr. Brown:—**He is a party to the case.**

The Court—**He is a party to the suit and the deposition having been taken when he refers to testifying on a certain date the witness himself also refers to the time the deposition was taken. It would be a more regular form of procedure to ask him a question and then have his answer to the question and then if his answer to the question is of such a character he may read the question and answer.**

The Witness:—**May I ask a question?**

The Court:—**Go ahead.**

The Witness:—**I can get my pass book and give it accurately every year if that is what they want. Answering from memory is very hard to do.**

The Court:—**The answer you just made will go in the record.**

Mr. Brown:—**I understand the Court overrules the objection?**

The Court:—**Oh, yes. The Court realizes there is something in the exception, that there is a little better form of procedure and counsel may bear in mind the Court's comments.**

Q.—You have not paid any income tax since 1930 or 1931? *A.*—I do not think I have paid an income tax since '32.

Q.—Did you testify in March of this year that you had not paid an income tax since 1930?

The Court:—**There you are asking to what he testified on a certain date, a certain question and certain answer, if counsel wants to object along that line—**

Mr. Quaid:—**We object.**

Mr. Brown:—**In order that I may understand the matter, does the Court—is the ruling of the Court that I have to ask him with reference to each specific year?**

The Court:—**If you seek to impeach him.**

Mr. Brown:—**As I understand a party to a suit, any statement he makes whether under oath or not is admissible in evidence. The same condition does not exist for a party who is not a party to a suit and one who is a party to a suit.**

The Court:—**The ruling will stand.**

Q.—What was your income in 1935? *A.*—If you will let me get my cash book I can give it accurately.

The Court:—**If you are able to give it substantially, all right; otherwise you may get your cash book and at another time be examined about it. If you are in a position at this time to state substantially do so, otherwise at some later time in connection with the case you may do so; not that we will recess at this time for that purpose. If you want to have your books present you may have them. You can have the books here this afternoon.**

Q.—I will ask this question with reference to his testimony: On March 8th of this year, didn't you testify under oath in taking your deposition that you made $2,100 gross in 1935? *A.*—I think that is as near as I can get it.

Q.—Didn't you undertake at that time, naming specific years, to state what your income was independent of your books? *A.*—I was giving it to the best of my memory.

Q.—To the best of your memory in 1935 your income was around $2,100 gross? *A.*—Yes.

Q.—And in 1936 it was around $2,600? *A.*—'36?

Q.—Yes. *A.*—Yes.

Q.—You were asked to produce copies of your income tax reports, Dr. Brunson? *A.*—All that I have I can produce them.

Q.—We asked you to produce them at that time did we not? *A.*—I do not think so.

Q.—Don't you recall we gave you specific notice to produce income tax reports since '31 and '32? *A.*—I can produce them.

Q.—You declined at that time to produce any? *A.*—I do not remember I did.

Q.—Where are they now? *A.*—I can go to my office and get a few of them. I do not know that I can get them all.

Q.—You have not brought them down here? *A.*—No.

Q.—Do you regard it as ethical for a physician to keep his secret formula? *A.*—What is that?

Q.—Do you regard it as ethical for a physician to keep his secret formula? *A.*—Medical ethics are ethics that are laid down by the American Medical Association. I am not a member of the American Medical Association and as long as I conform to the laws of the state of Texas I do not think that is unethical.

Q.—Do you think it is ethical for a physician to advertise, publish testimonials in the paper? *A.*—If he cannot get before the public any other way, and he is libeled, every mean thing said against him, that is the only way he can get before the public and that conforms with the state laws of Texas.

Q.—Then you think it is perfectly proper for a physician to advertise? *A.*—If he belongs to the American Medical Association he would get fired for advertising, but I did not belong.

Q.—I am not asking you that. I am asking do you think it is perfectly proper, in conformity with ethics, to advertise? *A.*—It was distasteful to me to advertise and I would not have advertised if I could have gotten a perfectly square deal with a scientific investigation. It was my intention to give my formula to the public to the people suffering from tuberculosis, all the people suffering from it in the world, but I did not intend to give it up until I got that scientific investigation.

Q.—You did advertise your treatment rather extensively in the papers? *A.*—You mean here?

Q.—Here in El Paso? *A.*—Yes.

Q.—And you advertised various remedies and treatments in Arkansas when you were there? *A.*—I did not. They don't belong to me.

Q.—Do you recall a remedy known as Dr. Brunson's Famous Prescription? *A.*—Yes a splendid prescription.

Q.—Did you advertise that? *A.*—I did not, a drug store did.

Q.—Did you allow them to? *A.*—I told them they could; even if you were a member of the American Medical Association you could do that.

Q.—You first had an arrangement with Reinberg and Collier for advertising and dividing the receipts did you not? *A.*—I gave them permission to advertise Brunson's Famous Prescription only.

Q.—And you were to get a percentage of it? *A.*—That is what I understood at the time.

Q.—Did you authorize Seawell's to advertise Brunson's Famous Prescription? *A.*—I did.

Q.—You personally wrote a recommendation or advertisement on a prescription slip and turned it over to them for that purpose did you not? *A.*—I did.

Q.—Signed your name to it? *A.*—Yes.

Q.—And that appeared in the Arkansas paper in Pine Bluff? *A.*—Only in the Pine Bluff paper and that was put in and paid for by Seawell's Pharmacy.

Q.—It was put in singly and also put in connection with an advertisement of the prescription? *A.*—I did not catch that.

Q.—I show you what is marked Defendants' Exhibit No. 10, with this notation for identification M. M. F. 3/8/39, and ask if you ever saw that before and to identify it? *A.*—That is my signature.

Q.—That is a photostatic copy of the instrument you wrote? *A.*—For Seawell's Pharmacy and there is nothing wrong about it.

Q.—And that appeared in the Pine Bluff *Commercial* did it not, a newspaper published at Pine Bluff, Arkansas? *A.*—Yes.

Q.—You authorized the publication of that? *A.*—I authorized Seawell to put it in if he wanted to.

***Mr. Brown:*—We offer this in evidence.**

***The Court:*—There being no objection, it will be received.**

The advertisement was then received in evidence, marked Defendants' Exhibit No. 2, was read to the jury and is in words and figures as follows:

From Page 2 March 7th 1917 Pine Bluff Commercial

SEAWELL'S PHARMACY
Phone 45
224 MAIN STREET

B For Any One troubled with indigestion, disorders of the stomach, liver, kidneys or in general run down condition—,
"Dr. Brunson's Famous Prescription"
(Price one dollar)

Reg. No. Date 191
Asa Brunson M. D.
Have This Filled at SEAWELL'S—I may want to refer to it.
"The home of the ONLY GENUINE Dr. Brunson's Famous Prescription."

Q.—Also, this other instrument marked Defendant's Exhibit 11, for identification M. M. F. 3/8/39, containing a copy of the same instrument? (Handing it to witness.) *A.*—That is the same thing.

Q.—And you knew about that advertisement? *A.*—I did not have anything to do with that. I knew they were getting it out and it was without my permission.

Q.—And it was advertised in that way? *A.*—It was advertised as Dr. Ran Brunson, my uncle.

Q.—You signed the document? *A.*—I signed the instrument.

***Mr. Quaid:*—Your Honor, we want to object to all that portion of the advertising below Dr. Brunson's signature. It shows that is a reprint of what has been introduced in evidence, but below that shows that is was Dr. Ran Brunson's formula. We would not be bound by advertising of the Seawell Pharmacy.**

***Mr. Brown:*—It appeared in connection with the advertisement.**

***The Court:*—As I understand the testimony of the witness, the witness testified that he knew that advertisement was being run and interposed no objection to it being run but he made his explanation of his signature. Overrule the exception.**

***Mr. Quaid:*—I thought it was run without his consent.**

***The Court:*—Interrogate him further, Mr. Brown.**

Q.—Do you recall ever having made the statement that you did see this advertisement? *A.*—I don't know whether I stated that I didn't remember whether I saw it or not, but I suppose that I did.

Q.—You took the Pine Bluff *Commercial* and read it every day, did you not? *A.*—What?

Q.—You took the Pine Bluff *Commercial*, the newspaper; you took the Pine Bluff *Commercial* and read it? *A.*—Yes.

Q.—You knew about the contents of the advertisement that was being published in it? *A.*—No, I very seldom read advertisements in the paper; I was very busy. I would read the news. I knew they were advertising, but I don't know that I paid much attention to it. They had a scrap there about three or four months.

Q.—You say you saw this advertisement? *A.*—I may; I don't remember it.

Q.—You won't deny it? *A.*—I won't deny it, no.

Q.—You never did make any protest about this advertisement, did you? *A.*—Not to Seawell's Pharmacy I did not.

Q.—In fact you testified you authorized the publishing of this prescription and that advertisement because you wanted to get even with Reinberger & Collier? *A.*—Yes; we had a fight.

Q.—That was the reason for publishing this stuff in the paper? *A.*—That is the reason Seawell people put it in. I knew he was going to advertise, but I didn't know that he was going to put that in. If any one came in and wanted to know if it was good, and it was good.

Q.—You turned it over to him? *A.*—I turned it over to him to use as he saw fit.

***Mr. Brown:*—We now offer this, if the Court please.**

***The Court:*—The Court overrules the exception.**

***Mr. Quaid:*—Note our exception.**

Said document was then received in evidence, marked "D-3" (fig. 1).

[Mr. Brown read the exhibit to the jury.]

Q.—And that advertisement appears with your name at the bottom? *A.*—My name? Oh, he put my name at the bottom, yes; I was the originator of that prescription.

A recess was taken at 10:35 a. m., and on reconvening at 10:50 the following proceedings were had (being in the absence of the jury):

***The Court:*—The Court was informed that defendant's counsel have some authorities they would like to present to the Court at this time bearing on the question as to whether or not the plaintiff in this action should be required to reveal his formula. I can hear those at this time, or the Court can hear them later. The Court is reserving that question. The witness is off the stand, and counsel for defense will be protected in ruling on that question by the Court reserving such matter. Counsel for the defendant may recall or have again placed on the stand the plaintiff, to be interrogated with reference to the formula, and the Court making ruling at that time.**

***Mr. Brown:*—If Your Honor please, the general rule—**

***The Court:*—The Court anticipated counsel would probably have some other authorities to present to the Court than yesterday and therefore is reserving such matter for further consideration.**

***Mr. Brown:*—The general rule appears in Corpus Juris, with citation of certain specific cases, one of which we have here, which we think is practically on all fours.**

***The Court:*—If you haven't that brief prepared, Mr. Lassetter, you may take this down.**

***Mr. Brown:*—"Where a trade secret is relative to an issue and disclosure essential to a correct determination, a witness is not privileged to refuse to disclose it." That appears under the title "Witnesses" in 70 Corpus Juris, sec. 897, page 743, note 70. The author cites a decision of the California Court of Appeals, *Willson v. Superior Court of California*, in and for Los Angeles County, appearing in the 225 Pacific at page 881. We have also a reference to the 66 California Appeals, page 275. In that case a party had been injured by the use of a certain chemical which he claimed was a highly explosive and dangerous chemical. He brought suit for damages against the party, and the party on the stand testifying refused to divulge the contents of the formula or what the component parts of that mixture or explosive were. The lower court refused to require the party to divulge. The allegation was that it was a dangerous and highly explosive material, and denial was made of that. The party refused to divulge, and the lower court refused the right. It then went up to the Court of Appeals on a citation for contempt, and the Court held the party being a voluntary witness, this being a relevant matter under the pleadings in the case, he would be required to divulge the contents of that formula or what the ingredients were. We want to read now shortly from the opinion. The question was "What are the chemical constituents of that flare? And by that I mean what is the flare made up of? What are the chemicals or substances or drugs of which it is made, and what are their respective proportions?" The objection was made that it was incompetent, irrelevant and immaterial and calling for a privileged matter, a secret process or trade secret; and, further, on the ground that the disclosure of the trade secret is not necessary to the decision of this case, or in the interests of justice.**

"On advice of counsel, defendant declined and refused to answer the question which had been propounded to him. The court adjudged him guilty of contempt of court for such refusal, and the defendant was thereupon committed to the county jail of Los Angeles County until he should answer the said question."

"The question of the jurisdiction of the trial court to so adjudge defendant guilty of a contempt of court and to order him committed by reason thereof is the only matter suggested for determination herein."

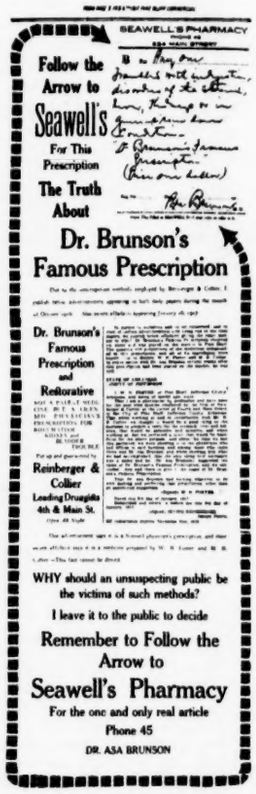

SEAWELL'S PHARMACY
Follow the Arrow to Seawell's For This Prescription
The Truth About
Dr. Brunson's Famous Prescription
Dr. Brunson's Famous Prescription and Restorative
Reinberger & Collier Leading Druggists 4th & Main St.
WHY should an unsuspecting public be the victims of such methods?
I leave it to the public to decide
Remember to Follow the Arrow to
Seawell's Pharmacy
For the one and only real article
Phone 45
DR. ASA BRUNSON

Fig. 1.—Reproduction (reduced) of a photostatic copy of an advertisement that appeared in the Pine Bluff Commercial, Feb. 6, 1917.

The Court then speaks of the general rule, and continues:

"It is important to determine, first, whether the allegations of the complaint were sufficient to authorize the reception of such evidence. Reverting to those allegations, it will be noticed that there are many expressions to the effect that the chemical constituency of the flare was 'highly and dangerously explosive.' The meaning of such language is apparent. There can be no misunderstanding that the thought thereby sought to be conveyed is that the substance of which the flare is composed is explosive in the same sense that gunpowder is. In plain and forceful language the defendant is placed on notice of just what plaintiff claims is one of the properties of the substance which defendant sold for plaintiff's use, without any alleged adequate warning as to its dangerous qualities. Should the ingredients of the flare, taken either separately or in any combination of its various parts, however prepared or however treated, be shown to be entirely harmless from an explosive standpoint, the case of the employee—"

The Court:—In the interest of time I don't think it is necessary to go into detail. You may state the authorities, and state what the facts are. The Court does not at this time wish to go into length on the authorities.

Mr. Brown:—The Court then continued, and held that he would be required to divulge, it was an essential matter, it was a relevant matter, that the pleadings raised the issue, and he could not resort to, especially being a party to the suit and having taken the stand, could not avail himself of the privilege on the ground that it was a trade secret, and required him to divulge the contents of that chemical or constituent.

Now there are quite a few cases in which injunctions have been sought to restrain the disclosure as to what the certain contents were or what a certain practice was, and a reading of those cases discloses in nearly all of them, in fact all of them as far as I am able to determine, there was some confidential relation which arose and the party was trying to enjoin a former employee from disclosing the formula, and the Court held under those circumstances he should not be required to disclose the secret, an entirely different situation than prevails at the present time.

There is another case, *Gossman* v. *Rosenberg*, Supreme Judicial Court of Massachusetts, 129 N. E. 424, which has some pertinent remarks. In that case it was in connection with trade practices and whether or not a party could be required to divulge who his customers were, and the Court held that was an issue in the case. The Court held the party could not fall back on the privilege and would be required to divulge. In the Brinkley case, if the Court cares for us to state how the matter arose—

The Court:—I don't know that the Court does. The Court probably has some general idea about that case, and I am going to hear from counsel on both sides. The Court is getting information as the case progresses that will aid and assist the Court in arriving at a definite conclusion of this. The Court is not going to be too hasty in ruling on it but is going to rule on it decisively before we get through with this case. If counsel on the other side have any further authorities to submit you may do so at this time. You gentlemen may prepare memorandum briefs if you wish to, to submit to the Court on the question.

Mr. Quaid:—Yesterday I stated the general proposition—

The Court:—Just in addition to what you had yesterday, if you have any authorities bearing on the matter.

Mr. Quaid:—I would just like to cite 138 S. W. page 352, *Stuckes* v. *National Candy Company*.

The Court:—What is the page?

Mr. Quaid:—Page 352, 138 S. W. page 352, *Stuckes* v. *National Candy Company*.

The Court:—What do you understand to be the facts in that case, and the holding in that case? You may just state it orally.

Mr. Quaid:—The facts were there were two outfits fighting over a candy recipe, and the defendant claimed certain rights growing out of transactions with the plaintiff. The plaintiff sued to stop the defendant from manufacturing their particular brand of candy, claiming it was an infringement of the trade secret and that they did not have a right to advertise that particular kind of candy. The plaintiff brought in a lump of their candy, and they brought in a lump of the candy of the defendant. I believe they call it dope or grease. And the plaintiff then moved that the defendant be required to disclose what was in their lump, and the Court held that that was not necessary; they had the lump and they could get an analysis from it.

The Court:—If this matter is brought in issue, and properly in issue, it was put in issue by the plaintiff in bringing his action here; the defendant is entitled to certain rights in his defense of the case. The plaintiff on the stand said you can't reach it by analysis. The Court might go ahead and rule on this matter at this particular stage of the proceeding but the Court feels as though the Court is perhaps gaining a little enlightenment as the case progresses, and is thrown on the proposition to enable the Court to determine more decisively on whether it should be divulged.

The jury thereupon returned to the jury box.

Questions by Mr. Brown:

Q.—Now, Dr. Brunson, this Dr. Brunson's Famous Prescription was really a laxative, wasn't it? *A.*—Was what?

Q.—Was only a laxative? *A.*—It was much more than a laxative.

Q.—What was it? *A.*—I will give you the contents. It was nitric acid, muriatic acid and iron, and saturated with a solution of epsom salts. Nitric acid affects the liver, muriatic acid is one of the natural contents of the stomach, is always good where there is lack of acids, and salts acts as a laxative, and that is what most people need.

Q.—So it was after all practically a laxative? *A.*—It was much more than that.

Q.—I believe you said that you had seen— *A.*—How?

Q.—I believe you said in March you thought you had seen this ad which I now show you? *A.*—I may have seen it, but it has been so long ago, Mr. Brown, I can't remember it. That is twenty-three or four years ago.

Q.—Was it one of those run in the regular course by Seawell's Pharmacy? *A.*—Yes, it was run by Seawell's Pharmacy.

Q.—Under the arrangement which you had with them? *A.*—The arrangement I had with them was to put the medicine out to be sold and they advertised it.

Q.—You furnished it to them? *A.*—Yes, sir.

Q.—You furnished them with a public endorsement of it, did you not? *A.*—Yes, sir. I will endorse it now.

Mr. Brown:—We offer defendant's Exhibit 12 for identification, marked M. M. F., 3/8/39.

Mr. Quaid:—Just a minute.

The Court:—What is your objection?

Mr. Quaid:—My objection is it is too remote. The evidence indicates it is some twenty years ago. It is not relevant to this case, has no bearing on it in any manner.

The Court:—Let me see the ad.

Mr. Brown:—We are going to show a policy continuing on down into El Paso, Texas, in advertising.

The Court:—Well, counsel is aware of the rule of law perhaps that even evidence of a conviction for a felony, and this is a civil case entirely, reaches a stage of limitation.

Mr. Brown:—That is very true, Sir.

The Court:—I believe that limitation is around about twenty years. I am not going to worry very much about that now.

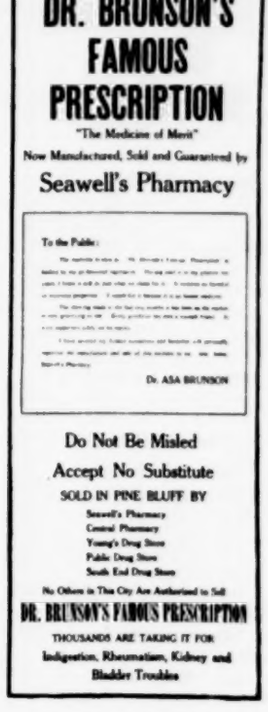
Mr. Brown:—It is a continuing policy with reference to the value and importance of his preparations, which we expect to continue on down to the present, until recent time, in El Paso.

The Court:—Does this relate to a large number of these matters?

Mr. Brown:—There are quite a number of them, if Your Honor, please.

The Court:—The Court will read a few. The Court will hear from counsel fully at this time, counsel for the defendant, as to a statement from them as to wherein this testimony is deemed material or will have a proper bearing and admissible on the issues here in controversy, as related by the pleadings in this case.

Mr. Brown:—Your Honor please, this is a libel suit in which the plaintiff himself, by coming into court, has put in issue his professional character and reputation, the ethics of the profession. We are not bound by his idea of ethics or by any individual's idea of ethics. We are bound by the ethics of the body of the profession itself. He claims to be a practicing physician and surgeon, doctor of medicine, of established reputation, and that that reputation was ruined and harmed by the publishing of certain defamatory matter on the part of or by the defendant. One of the elements of a man's reputation in his particular profession is whether or not he conforms to the ethics of the profession. We expect to connect this up on down into his career into El Paso County, or the city of El Paso, and show his advertisements of a similar character with reference to the particular preparation that is under investigation in this particular case. It shows the course of—


EXTRA! EXTRA!

DR. BRUNSON'S FAMOUS PRESCRIPTION

"The Medicine of Merit"

Now Manufactured, Sold and Guaranteed by

Seawell's Pharmacy

To the Public:

Dr. ASA BRUNSON

Do Not Be Misled

Accept No Substitute

SOLD IN PINE BLUFF BY

Seawell's Pharmacy
Central Pharmacy
Young's Drug Store
Public Drug Store
South End Drug Store

No Others in The City Are Authorized to Sell

DR. BRUNSON'S FAMOUS PRESCRIPTION

THOUSANDS ARE TAKING IT FOR

Indigestion, Rheumatism, Kidney and Bladder Troubles

Fig. 2.—Reproduction (reduced) of a photostatic copy of an advertisement that appeared in the Pine Bluff Commercial, Jan. 13, 1917.

The Court:—The Court will say that matters of recent date, or along about the time of and preceding for a period of time in advance of the date of the telegram made the basis of the action herein, dated January 19, 1938, the Court will probably consider material. That presents a different question than the Court is here presented with at the present time; the matter that is running in the Court's mind at the present time is how far back you should go into the matter of this character. The Court sees these advertisements, methods of procedure, and so forth, determination of whether it is ethical or bearing on the question of reputation. The Court intimated to counsel a few moments ago that the matter that is running in the Court's mind is how far back you can go in matters of this character, as to the question of proper consideration as to its admissibility. The Court will ask you to address yourself to that phase of it.

Mr. Brown:—We understand, Your Honor please, there is a very, very wide latitude in a libel case, much wider than ordinarily in a case, and this bears on a continuing system of practice, which we will connect up, his advertisements in the county of El Paso since he has been residing here.

The Court:—That wouldn't need any following up probably.

Mr. Brown:—It is a continuing course though.

The Court:—What the Court is getting at speaks for itself. The Court will give wide latitude as to matters that may bear on any phase, and all facts and circumstances that enter into the question of whether or not the matter is libelous.

Mr. Brown:—May I say this much—?

The Court:—The Court has admitted two or three, some of these that have a name signed to. The Court is seeking to save a little time. A good many of these have his name signed to them, and several of them have not. They appear to be in some character of controversy up there in Arkansas between some drug concerns. I don't know whether that is all material here in this case or not. I want to let in all of that which is material and eliminate some of that matter that might not be.

Mr. Brown:—The plaintiff in this case gives as his reason for advertising the fact that he had a fight, he had to fight the other doctors, and that was one of the reasons he fell out with Holderness; yet we find they go back to a long period back of that time, when he did not have that excuse, and he was adopting the same course of procedure. He didn't have the excuse he had to fight the medical profession here in El Paso or the American Medical Association.

The Court:—Now, I am asking you to mark those that you are going to seek to offer here. Some of them have his name signed to them and some do not. And the Court, in the interest of time, is going to lump some of these matters. The Court made reference a few moments ago about a criminal case in which the question of reputation of a man arose. Counsel is familiar with those authorities in the state of Texas where it is sought to show that reputation had become involved. I remember very distinctly a case in one county in which Polk Moseley was a conspicuous figure, was up for horse stealing perhaps, or bootlegging in the United States Court, or something of that sort, and it was sought to prove about twenty-one or two years before that he was convicted of horse stealing. The Appellate Court of Texas held that was going too far back on the question of reputation. So that is all, gentlemen. The Court has admitted three or four of them already, and it seems as though that is rather cumulative, or along the same order.

Mr. Brown:—It contains one additional article that was not in the other. We expect to stop with this one and jump to 19—

The Court:—Just mark the additional ones you want to offer, and the Court will determine as to the admissibility of them.

Mr. Brown:—We only want and expect to offer of those in Arkansas this Exhibit No. 12. Later on when the question comes up on the testimony of another witness we may want to offer some others.

The Court:—For consideration of the Court at the present time, No. 12?

Mr. Brown:—Yes, sir.

The Court:—I will look at that.

Mr. Brown:—Particularly this portion of it (indicating to the Court), but to identify it we think it has to go in.

The Court:—This one bears the signature, a statment addressed to the public over the signature of Dr. Asa Brunson. The Court will overrule the exception and permit that instrument to be offered in evidence.

Mr. Quaid:—Note our exception.

The Court:—You understand the Court's ruling, Mr. Brown? The Court overrules the exception to that instrument, and the instrument may be offered in evidence.

Mr. Quaid:—We want our bill on that, and want our bill to show the approximate date of the advertisement.

Mr. Brown:—It shows in the body of it, above it, January 13, 1917.

The advertisement was thereupon received in evidence, marked "D-4" (fig. 2), was read to the jury by Mr. Brown.

Q.—Doctor, I just hand you this for the purpose of identification.

Mr. Quaid:—For the purpose of identification, that doesn't mean anything.

The Court:—He has handed it to the witness, to be marked for identification.

Mr. Brown:—We reserve our rights in that particular.

Q.—You have seen that before? *A.*—Yes.

Q.—It is marked "Defendant's Exhibit 19 for identification. 3/8/39. M. M. F." You have seen this? *A.*—Yes.

Q.—You knew about it at the time? *A.*—Yes, sir.

The Court:—What is its identification number here?

Mr. Brown:—It is marked "D-5," I just want to identify it.

Whereupon, said instrument was marked exhibit "D-5" for identification.

Q.—Do you identify the next pamphlet which I hand you, "The Atomizer," El Paso, Texas, February 1929? *A.*—This "Atomizer" was gotten out—

Mr. Quaid:—Ask him the question.

Q.—You have seen that before? *A.*—Yes.

Q.—That was published by you? *A.*—Published by my office.

Q.—Published in your office? *A.*—In my office, yes.

Q.—Edited by you? *A.*—Not by me, by the young lady in my office, my secretary.

Q.—You had it distributed? *A.*—She distributed them.

Q.—She was employed for that purpose? *A.*—No, she was employed as my secretary and stenographer.

Q.—These items set forth in the "Atomizer" were compiled by you? *A.*—This girl got them up, yes, sir.

Q.—The proofs were submitted to you? *A.*—No, I never saw it.

Q.—That document was distributed from your office and mailed out? *A.*—Yes, and there is nothing wrong about it.

Q.—You had more than 500 copies of it published and mailed? *A.*—No, we had—possibly it was 500, if I remember correctly, it was about 200 we got out.

Q.—Volume III, No. 2. You published "The Atomizer" over a period of six months or a year or two? *A.*—Longer than that, three or four years.

Q.—You knew about it? *A.*—Oh, yes.

Q.—And knew what its contents were? *A.*—Yes.

Q.—Was it published in furtherance of your business as a doctor? *A.*—No, it was for the amusement of my patients.

Q.—Didn't you identify this instrument in March of this year and state that your secretary obtained the information on which these articles were based from you? *A.*—Yes.

Q.—Didn't you state that you had seen this copy before? *A.*—I saw all of the copies.

Q.—Are you the Dr. Asa Brunson who is referred to in this document? *A.*—Yes.

Q.—Are you the one who is referred to as having originated a unique and successful treatment for tuberculosis? *A.*—Yes, sir.

Q.—And that you had become internationally famous on account of the results obtained in treating thousands of cases in all stages of the disease? *A.*—I didn't put that in there, it was written and being distributed before I saw it.

Q.—You knew it was in there? *A.*—No, I didn't.

Q.—Didn't you so testify before? *A.*—I read it after it had come out, and I stated it was too late for me to change it, there was nothing wrong about it, it didn't hurt anything anyway.

Q.—You permitted that document to be distributed at your expense? *A.*—Yes, I paid for having it printed and paid for the stamps and envelops to send it out.

Q.—It was distributed by handing it to parties and by sending it through the mails, is that correct? *A.*—I sent it through the mails, and I was not breaking any law.

Mr. Brown:—We have decided to offer this instrument in evidence at the present time.

Mr. Quaid:—No objection.

Whereupon, said instrument was marked Exhibit D-6 and reads as follows, to wit:

"THE ATOMIZER
Sprays all News

Office of Publication 717-721 Caples Building

Volume III El Paso, Texas, February, 1929 No. 2

DR. ASA BRUNSON DISCOVERS TREATMENT FOR TUBERCULOSIS EIGHT YEARS AGO.

"Dr. Asa Brunson of El Paso who originated a unique and successful method for the treatment of tuberculosis, eight years ago has become internationally famous on account of the results obtained in treating thousands of cases in all stages of the disease.

"The doctor, who has been practicing medicine for thirty years is a graduate of the Memphis Hospital Medical College class 1899. He served as captain in the Medical Corps during the world war and for eight years has limited his practice to the treatment of tuberculosis exclusively.

"Dr. Brunson attributes his success in the treatment of tuberculosis, where other doctors have failed, to the fact that they have been constantly trying to eradicate the tubercle bacilli instead of the pus germs which he believes are entirely responsible for the bad symptoms of the disease.

"His theory of tuberculosis is that the pus germ plays a much more important part in the disease than the tubercle bacilli and he has proved conclusively that when the pus can be eliminated and the pus germs rendered inactive, patients even in advanced stages of tuberculosis recover very rapidly.

"The treatment is administered by means of inhalation and causes no irritation or reaction and the patient is not confined to a sanitarium or hospital but simply visits his suite of offices twice daily for treatment, when convenient, however, Dr. Brunson's treatment may be taken by the patient at home and at the present time the doctor is mailing medicine to patients from coast to coast and from the Canadian border to the Gulf of Mexico.

"Hundreds of tubercular patients who have taken Dr. Brunson's treatment have returned home and resumed their former occupations in all walks of life. Their letters of appreciation and recommendation flow into the office daily and it is a source of great satisfaction to the doctor to know that tubercular sufferers who once had little hope now enjoy the best of health.

"Dr. Brunson is offering to disclose his formula to the world after a ninety-day, scientific investigation by the medical association or any other scientific research foundation or organization and inasmuch as there are millions of cases of tuberculosis in the United States and the death rate is larger than from any other disease, it would seem vitally important that such an investigation be started immediately in order that those suffering from tuberculosis throughout the entire world might take immediate advantage of Dr. Brunson's successful method of treatment, especially since he offers to pay all expenses of such an investigation."

"OUT OF WORK FOUR YEARS, SPENT THOUSANDS OF DOLLARS, CURED IN THREE MONTHS

Roswell, New Mexico, December 1, 1926.

"I came to El Paso two years ago with an advanced case of tuberculosis. I had been sick for three years at that time. I took the sanatorium treatment for fourteen months, had a hypodermic every day and after this length of time, my doctor found a great deal of tuberculosis left in both lungs, and told me not to be out of bed more than three hours a day and not to walk out of the house.

"After being in idleness for over four years, and spending thousands of dollars for different treatments, I felt very discouraged. Then I decided to try the Brunson treatment.

"I took two treatments a day and at the end of three months I was cured. Then I made a trip back to New York and caught a bad cold and when I got back to El Paso my lungs were in bad shape again.

"I took the Brunson treatment again, and in three weeks my lungs were clear, and I am well and working every day.

"It is a great pity that the Brunson treatment and its wonderful results are not known far and wide over the world for many tubercular patients could regain their health and live useful lives after taking this treatment.

Mr. Frank Ehret."

Q.—717-721 Caples Building, those were your offices? *A.*—Yes, sir.

Q.—"Treating thousands of cases in all stages of the disease," is it true you had become internationally famous? *A.*—I didn't know that before.

Q.—Is it true you had treated thousands of cases up to 1929? *A.*—No, I hadn't treated that many—I may have treated that many.

Q.—In spite of the fact that you hadn't treated that many and hadn't become internationally famous, you allowed this to go out? *A.*—I didn't become internationally famous until my treatment was quoted as a dangerous fake.

Q.—You now claim to be internationally famous? *A.*—Yes, very famous.

Q.—Is Mr. Frank Earhart, mentioned in this testimony and this document the same Frank Earhart of Roswell, New Mexico? *A.*—That isn't his name.

Q.—What is it? *A.*—Frank Ehret.

Q.—Is he the same Frank Ehret to whom you wrote the letter about paying $20 for each patient? *A.*—I paid him—

Q.—Just answer the question, is he the same person? *A.*—That I sent the $20 check to?

Q.—Yes. *A.*—He is.

Q.—I hand you a pamphlet headed in large letters "TUBERCULOSIS. Asa Brunson, M.D. Practice limited to tuberculosis. Office 717 Caples Building, El Paso, Texas," marked originally "Defendant's Exhibit 21 for identification. M. M. F. 3/8/39." I will ask you if you didn't publish that document? *A.*—Yes, I published it and it is true.

Q.—When was that published? *A.*—That was published some time in 1929.

***Mr. Brown:*—We want to have it marked for identification Exhibit D-7.**
Whereupon, said instrument was marked for identification Exhibit D-7.

Q.—I believe you published about 500 copies of that, more or less, and distributed them through the mails and otherwise, did you not? *A.*—Yes.

Q.—Who compiled the data for this Exhibit D-7? *A.*—My stenographer and myself did the compiling.

Q.—I hand you in a folder marked El Paso *Times,* Sunday, August 17, 1924, a sheet, and ask you if you have seen that before? *A.*—Yes, I put that in and paid for it.

Q.—That is one of your paid advertisements, is it? *A.*—Yes.

***Mr. Brown:*—Will you mark that for identification.**
Whereupon, said instrument was marked Exhibit D-8 for identification.
***Mr. Quaid:*—No objection.**
***Mr. Brown:*—We are not offering it at the present time, we reserve the right, as I did before.**

Q.—I hand you another folder with a portion of a page from a newspaper, El Paso *Times,* Sunday, August 31, 1924, and ask you if you have seen that before? *A.*—I have.

Q.—That is your advertisement? *A.*—Yes.

Q.—You prepared it and had it put in the paper and paid for it, is that correct? *A.*—Yes.

***Mr. Brown:*—Mark that for identification.**
Whereupon, said instrument was marked Exhibit D-9 for identification.

Q.—I hand you another clipping from a newspaper advertisement with "Asa Brunson, M.D. First National Bank Building" on it, it is No. 4 of a series in the El Paso *Times* of June 15, I suppose '24, but I can't tell, did you ever see that? *A.*—I did. Percy Montgomery was the man who wrote it, it is a good ad.

Q.—It is your advertisement? *A.*—Yes
Q.—You paid for it? *A.*—It is true.
Q.—You paid for it and put it in the paper? *A.*—Yes.

***Mr. Brown:*—Mark that for identification.**
Whereupon, said instrument was marked Exhibit D-10 for identification.

Q.—We hand you what is originally marked Defendant's Exhibit No. 26, for identification, M. M. F. 3/8/39, with your name on it and I will ask if that was your advertisement? *A.*—This is a copy of a letter I received from S. I. DeLoach.

Q.—You had that inserted in the paper did you not? *A.*—Yes.
Q.—And paid for it? *A.*—I did.

***Mr. Brown:*—We mark this for identification and reserve our rights.**
Advertisement was then marked for identification as Exhibit "D-11."

Q.—Here is what purports to be an ad from the El Paso *Times* of October 25th, 1931, and I will ask you to identify that, Doctor, and state whether or not it is your advertisement? *A.*—It is.

Q.—You had it made and paid for it? *A.*—It is a good one and an honest one.

Q.—Who put it out? *A.*—I did.
Q.—Paid for it? *A.*—I did.
Q.—Who prepared it? *A.*—I don't know.

***Mr. Brown:*—We have that marked for identification as Exhibit 12.**
Advertisement was then marked for identification as Exhibit "D-12."

Q.—You had a half dozen different people preparing these ads at times? *A.*—At different times.

Q.—Here is something taken from the El Paso *Times* of June 19th, 1921. *A.*—This was a news item.

Q.—You saw it and have read it? *A.*—I have.
Q.—And read it at the time? *A.*—I read it at the time.

Q.—And the information in this news article came from you did it not? *A.*—No, it came from Mr. Griffin, the gentleman I was treating. He was in the office every day.

Q.—How did he get the names mentioned in this article? *A.*—He knew most of them.

Q.—The people from Pine Bluff? *A.*—I gave him the names from Pine Bluff.

Q.—You furnished the information that formed the basis of this article? *A.*—He got the basis of that from patients he met in the office when I was treating him.

Q.—You did not see fit to correct anything in that article? *A.*—I told him there were things to be corrected, he said he was responsible for it himself, it was a news item and it did not need to be corrected.

Q.—You let it stand without contradication and without question? *A.*—Yes.

***Mr. Brown:*—We will have that marked for identification as Exhibit 13.**
Advertisement was then marked for identification as Exhibit "D-13."

Q.—I show you what appears to be a full page ad or approximately so from the El Paso *Times,* Sunday, August 10th, 1924. Did you ever see that? *A.*—Yes, I have seen this.

Q.—That is your advertisement is it not? *A.*—Yes.
Q.—You had it put in the paper? *A.*—I did and paid for it.
Q.—And you compiled the data? *A.*—I did.

Q.—It is marked originally "Defendant's Exhibit 22, for identification, M. M. F. 3/8/29." You put that in the paper? *A.*—I did.

***Mr. Brown:*—We have this marked Exhibit 14 for identification.**
Advertisement was then marked for identification as Exhibit "D-14."
***Mr. Brown:*—We reserve our rights on that.**

Q.—Now, didn't you, Dr. Brunson, over a period of considerable time have daily ads inserted, advertisements inserted in the El Paso papers? *A.*—I did for a while.

Q.—For how long a period of time? *A.*—I do not know exactly. It has been six years since I advertised at all.

Q.—But you did for a period of five or six years run daily advertisements in the paper? *A.*—I did. I wouldn't say daily. I ran them possibly twice a week.

Q.—Generally you would have them in the Sunday issue would you not? *A.*—What?

Q.—In the Sunday issues particularly? *A.*—Yes.

Q.—Sometimes full page ads? *A.*—I have had full page ads.

Q.—Did you have anybody employed as a publicity agent? *A.*—No.

Q.—But you did have somebody employed for the purpose of aiding you in preparing and compiling these ads? *A.*—Most of the time it was done by the advertising manager of the paper.

Q.—Part of the time though you had somebody paid and employed for that purpose? *A.*—Yes, for part of the time.

(To be continued)

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, JULY 1, 1939

ARCHIVES OF SURGERY: NEW EDITORIAL DEVELOPMENTS

Development of surgery in the United States has been unprecedented for its rapidity, its quality and its scientific character. Few, if any, would contest the claim that today American surgery leads all the world. In 1920, when the *Archives of Surgery* was established by the American Medical Association, there were but two important periodicals in the surgical field in this country. The space available was hardly sufficient for the publication of all contributions of value—seldom was it possible to publish articles of more than eight or ten pages. These restrictions prevented the publication of many important surgical contributions, especially in the field of experimental surgery. It is not surprising, therefore, that the *Archives of Surgery* has become in the intervening years the leading publication in the field of experimental surgery and that references to articles published in its pages constitute a large part of the bibliographies of articles on surgical subjects published in foreign periodicals. In every survey of bibliographic references that has been made, references to the *Archives* indicate that it has been the leading source of consultation in the last two decades.

The highly technical character of much of the material that has appeared in the *Archives of Surgery* has tended to divert attention to some extent from the *Archives* to other surgical publications, which have stressed more particularly contributions in the field of clinical surgery and articles dealing with modifications in surgical technic. The unfortunate illness of Dr. Dean Lewis, Editor in Chief of the *Archives of Surgery* since it was established, brought to the attention of the Board of Trustees of the American Medical Association some of these special problems associated with this publication.

After much consideration it was determined to expand the editorial board of the *Archives* and to modify the nature of the contents of the periodical in order to make it fulfil more completely its original purpose. Four additional members have now been added to the Editorial Board: Dr. Arthur W. Allen, Boston; Dr. Alfred Blalock, Nashville, Tenn.; Dr. W. E. Dandy, Baltimore, and Dr. L. R. Dragstedt, Chicago. Dr. Waltman Walters has been made chairman pro tem., during the incapacity of Dr. Lewis. It has been decided to publish papers dealing with clinical investigation on surgical problems as well as articles which concern developments in the various special fields of general surgery. Collective reviews will be published from time to time, written by competent investigators who have devoted themselves particularly to special subjects and who will be invited by the editors to develop such reviews. The *Archives* will provide prompt publication each month of short preliminary reports of noteworthy surgical advances made by its contributors.

These decisions have been reached after careful consideration of the problems in conferences of the Editorial Board and of members of the Editorial Board with the Board of Trustees. It is anticipated that the surgeons of the United States will welcome the opportunity for more prompt publication in the field of surgery and the availability of the *Archives* as an authoritative medium for the recording of surgical advancement.

THE PATHOLOGY OF OBSTETRIC SHOCK

Although the term "obstetric shock" may be variously interpreted, it seems to be without exact definition. Clinically the concept of "pure obstetric shock" excludes all cases in which the etiologic factor is known. Pathologically the essential requirement is that the patient shall have died of shock in connection with obstetrics. Postmortem investigation frequently discloses gross lesions which had not been suspected clinically and furnishes moreover a few possible clues as to the mechanism of shock. It does not explain, however, how inversion of the uterus, for example, can produce the functional disturbance known as shock.

In a study of the pathologic anatomy of obstetric shock, Sheehan [1] reviewed all the fatal cases of obstetric shock seen in the Glasgow Maternity Hospital during the previous five and one-half years. The criterion of obstetric shock that was adopted is wider than that in common clinical use; that is, if the patient with the clinical appearances of shock died during labor or within twenty-four hours after delivery, whether or not any explanation for the shock had been recognized before death. The cases finally selected were grouped according to the apparent etiologic factors: dystocia twenty-nine cases, ruptured uterus thirteen cases, retained placenta twenty-two cases, uteroplacental apoplexy twenty-one cases, uncomplicated cesarean section four cases, and complicating disease eight cases. The cause of dystocia was simple disproportion, occipitoposterior presentation or, more rarely, hydrocephalus or oblique intra-uterine position. The second group, in which ruptured uterus was regarded as the cause of death, was closely related with the previous group. Seven of these patients had dystocia requiring intra-uterine

1. Sheehan, H. L.: The Pathology of Obstetric Shock, J. Obst. & Gynec. Brit. Emp. **46**: 218 (April) 1939.

manipulations; the other six patients had spontaneous ruptures. The retained placenta group could be divided into six patients who died between two and three hours after delivery and sixteen patients, of whom eleven died between four and eight hours after delivery and the other five between eight and twenty-four hours after delivery. The twenty-one cases in the uteroplacental apoplexy group were so called as representing mixed or concealed accidental hemorrhage with retroplacental clot. Although these cases are usually classified under the heading "hemorrhage," the usual cause of death is shock. Of the eight cases due to complicating disease, death occurred in one before delivery and in the others within eight hours after delivery. Four of the patients had definite evidence of previous hypertension; the others had lobar pneumonia, acute hemorrhagic pancreatitis, renal disease and influenza respectively.

The principal characteristic demonstrable organic pathologic changes given by Sheehan consisted of the presence of subendocardial hemorrhages on the left of the interventricular septum, a uterine appearance dependent on the clinical condition, occasional hemorrhages into the ovaries, edema of the parametrium and pelvic tissues in some instances, acute dilatation of the stomach with air, commonly, and necrosis of the anterior lobe of the pituitary gland, if the patient who died of obstetric shock survived for a day or more. Such a variety of pathologic manifestations may well be difficult to include as a concrete syndrome.

THE FUNCTION OF THE STATE IN MEDICINE

In a meeting of the Section of Epidemiology and State Medicine of the Royal Society of Medicine in Great Britain a symposium was held during February 1939 on the proper sphere of state medicine. In the opening statement, by Dr. Alfred Cox, former secretary of the British Medical Association, he pointed out that even with all his experience in this matter he was unable to accept the solution that the state should make medicine free to all. Some of his statements merit particular quotation; thus Dr. Cox said:

> In a world which is becoming more and more machine made and mechanized, in which the individual tends to become more and more swamped in the mass, it seems to me a good thing, indeed an imperative duty, whenever we can, to keep our profession, and the rights and privileges and welfare of the individual, free from the shackles of standardization—a condition which is the inevitable result of government control. Nowhere is such an effort so necessary as in those countries which profess to believe in freedom of thought and action, and dislike the growth of the authoritarian idea.

In his concluding remarks, he said:

> As at present advised, therefore, the answer I give to the question in debate is this: The proper function of the state, so far as the actual provision of medical attendance is concerned, is to leave it as far as possible to a free profession dealing with a free people; to encourage the profession and people to make voluntary arrangements where practicable, preferably on an insurance basis; to make such arrangements compulsory where the voluntary principle does not work; to aid financially those citizens who cannot provide entirely for themselves; and to keep the "dead hand" of officialdom as far off as possible. I want to make progress without impairing some of the most precious gifts possessed by the ordinary man, namely the desire to help himself, to be independent and to be regarded not as a mere cog in the state machine but as a self-respecting and, so far as possible, a self-maintaining citizen. In this way of approach I believe we shall not only be doing the best we can for our potential patients and for our profession—which can only operate to its maximum capacity as a *free* profession—but also for the community as a whole, by making it clear that in the field of medicine we desire to minimize state control because it is likely to officialize our profession and consequently lessen its usefulness to the individuals who form the community.

Dr. Andrew Topping emphasized that the demands for the services of the general practitioner are becoming less and less in Great Britain. He satirized the concentration of specialists in the Harley Street area and said that, since the crux of the whole situation is financial, state medical service should be the aim. He emphasized, however, that control of the service must be entirely nonpolitical and must be in the hands of medical men recruited from all branches of the profession.

Dr. Frank Gray pointed to the salaried medical service of the London County Council as being a fine example of the possibility of administering service with a salaried profession but said also that unfortunately there are other salaried services besides those of the London County Council which were apparently not nearly so satisfactory. The essential feature of such a service is the salary and consequent security, but with that is a contentment which brings rigidity and inertia. "It is a remarkable fact," he said, "that though we have had National Health Insurance for over twenty-five years, and a Ministry of Health for twenty, the only postgraduate instruction in preventive medicine for general practitioners has been organized by two groups of London doctors, and not by the ministry." He pointed out that, further, "Nothing is done without stirring up trouble, and the chief object of a government servant is to avoid stirring up trouble."

Statements by Dr. E. R. C. Walker and Mr. Somerville Hastings indicated still further that Great Britain has not yet found a satisfactory answer for its medical problem.

Dr. F. C. White concluded the discussion by pointing out that neither the state nor the municipality ever took over a service which was being efficiently provided by private enterprise. He felt that state medical service in Great Britain is inevitable but that at the same time the ideal should be "to ensure that every case of illness is seen in the first instance in the patient's own home by his own family doctor."

The more one reads of these discussions by medical men in various foreign countries, the more is one convinced that they are still experimenting, still blundering, still trying to evolve a wide distribution of high quality of medical service, without having achieved in any country much better distribution of high quality of medical service than is available in the United States today.

INFLUENCE OF THYROID THERAPY ON MENTAL GROWTH OF CRETINS

Only by careful studies of the detailed investigations of the physiologic effects of thyroid therapy can maximum assistance be given to those unfortunate children who suffer from cretinism or juvenile hypothyroidism. Although some of those afflicted with cretinism respond poorly to treatment even when it is given promptly, the value of early diagnosis and treatment of this condition is shown by numerous observations. In a recent report, Brown and his co-workers [1] describe the influence of thyroid therapy on the mental growth of children suffering from cretinism. The record covers a carefully carried out investigation of the degree of mental development of these patients during treatment, as determined by psychologic tests given over a period of from one to seven years. Like other investigators, Brown and his collaborators observed that even with treatment most of the children remained severely retarded mentally. Despite thyroid therapy for from one to seven years, in about 75 per cent of the twenty-nine cases studied the intelligence quotient was below 80, in 25 per cent below 45 (at the imbecile level or below) while in only two cases was the quotient above 100. In both of the latter cases the treatment suggested that the best results in this direction are obtained when an early diagnosis is made and when treatment thereafter is persistent and active. Throughout the group there was a slight increase in the intelligence quotient during the period of treatment of the patients studied; moreover, the increase was greatest for those whose treatment was begun early. Although 25 per cent of the patients were at the imbecile level and 50 per cent at the borderline or high grade defective level in spite of persistent and active treatment, it should be recognized, as pointed out by Brown and his associates, that without treatment all of them would probably be at the imbecile or idiot level.

In a study of the value of thyroid therapy on a large number of cretins, Lewis [2] observed that, in the majority of his patients, there was a rough correspondence between adequacy of treatment and the intellectual level attained but that it was possible for some cretins to reach a normal mental level. Promptness and continuity of the administration of thyroid are, however, apparently not the only decisive factors in determining to what extent the cretinous child will remain backward. Other factors, such as the stage of development at which symptoms of thyroid deficiency appeared, the degree of this deficiency, the hereditary endowment of the child and any cerebral damage either at birth or in infancy, have been stated to influence psychologic attainment. Similar factors have been emphasized in a report by Gesell and his co-workers.[3] Thus, the available evidence indicates that, although the level of mentality of cretins can rarely be brought within the normal range by thyroid treatment, there is in many cases a favorable response which shows a rough correlation to the intensity of treatment.

1. Brown, A. W.; Bronstein, I. P., and Kraines, Ruth: Hypothyroidism and Cretinism in Childhood: VI. Influence of Thyroid Therapy on Mental Growth, Am. J. Dis. Child. **57**: 517 (March) 1939.
2. Lewis, Aubrey: Study of Cretinism in London, Lancet **2**: 5 (July 3) 1937.
3. Gesell, Arnold; Amatruda, Catherine S., and Culotta, C. S.: Effect of Thyroid Therapy on the Mental and Physical Growth of Cretinous Infants, Am. J. Dis Child. **52**: 1117 (Nov.) 1936.

Current Comment

FOURTH OF JULY INJURIES

For the past two years the American Medical Association has resumed its annual summaries of the injuries from fireworks resulting from the celebration of the Fourth of July. In 1938, eighteen deaths were directly attributable to fireworks and seven were indirectly due to the same cause. Two cases of tetanus were reported in 1938, as in the previous year. Last year there were 7,933 injuries recorded, as compared with 7,205 in the preceding year. Since last year a few of the states with the worst records of deaths and injuries from fireworks have enacted legislation aimed at the prevention of this unnecessary source of danger. Again the cooperation of hospitals throughout the country has been requested to assist in carrying to the public consciousness the unnecessary hazard of allowing fireworks to be sold indiscriminately to the public.

INFECTIOUS MONONUCLEOSIS

The diagnosis of infectious mononucleosis is often difficult. Thus Marshall [1] recently reported four cases of infectious mononucleosis, each simulating a different disease. In one case the dominating symptoms were cerebral, one simulated lymphatic leukemia, one presented all the appearances of follicular tonsillitis and in one weakness was the principal symptom. These cases clearly demonstrate the practical value of the specific heterophile antibody test stemming from the early work of Forssman. In fact the correct diagnosis probably would have been missed without the help of this diagnostic procedure. Saphir [2] has reported a case of infectious mononucleosis in which the clinical picture was similar to preeruptive and later to secondary syphilis. In this case four plus Wassermann and Kahn reactions and a papular rash increased the diagnostic difficulties. As Saphir pointed out, had the heterophilic antibody test not been performed and the characteristic reaction noted, the case would doubtless have been diagnosed as one of preeruptive syphilis. The subsequent disappearance of the positive Wassermann reaction would then have been attributed to the antisyphilitic treatment. The serologic problems raised by the presence of the heterophile antibody reaction and the positive Wassermann test cannot however be satisfactorily explained at present. Certainly the bizarre symptomatology of infectious mononucleosis calls for a specific diagnostic procedure which the heterophile antibody test appears to fulfil.

1. Marshall, E. A.: Infectious Mononucleosis, Am. J. Clin. Path. **9**: 298 (May) 1939.
2. Saphir, William: The Wassermann Reaction in Infectious Mononucleosis, Am. J. Clin. Path. **9**: 306 (May) 1939.

ORGANIZATION SECTION

HEALTH PROBLEMS IN EDUCATION

THIRD SYMPOSIUM, HELD AT ST. LOUIS, MAY 16, 1939

DR. S. JUDD BEACH, PORTLAND, MAINE, IN THE CHAIR

A Symposium on Health Problems in Education was arranged by the Joint Committee on Health Problems in Education of the National Education Association and the American Medical Association to be held during the annual session of the American Medical Association at St. Louis. Joint sponsors were the Section on Ophthalmology, the Section on Pediatrics, the Section on Preventive and Industrial Medicine and Public Health, and the Section on Laryngology, Otology and Rhinology of the American Medical Association. The date of the Symposium was May 16. Dr. S. Judd Beach, chairman of the Section on Ophthalmology, presided.

All the speakers were furnished a copy of a tentative statement of health policies recommended for school health work, prepared by the Child Health Section of the American Public Health Association and a committee of the American Academy of Pediatrics. This statement is not available for publication in full because it remains in tentative form at this time. The most important principles advocated in the tentative statement are as follows:

RESPONSIBILITIES OF SCHOOL HEALTH PROGRAMS

1. To provide a healthful environment. This includes attention to the arrangement of the school program and the social and emotional tone of the classroom as well as attention to school sanitation.

2. To have a planned program for the care of accidents occurring at school and for cases of sudden sickness.

3. To have a planned program for assisting in the community program of contagious disease control.

4. To teach pupils habits and attitudes conducive to the maintenance of good health, and to facilitate the accumulation of scientific knowledge relating to the causes of disease, the way certain diseases are spread, and the known methods of preventing disease from the point of view of both individual and community health.

5. To encourage the periodic health examinations of pupils, to develop a plan whereby such examinations will be obtained, and to keep a cumulative record of the findings and recommendations.

6. To give special attention to those in need of medical or dental care through a follow-up program which will, where necessary, guide pupils and parents to sources of medical and dental treatment.

7. To provide special education programs adapted to the needs of handicapped pupils.

8. To provide supervision and in-service training for teachers and to place specific responsibility in the hands of some person especially qualified in education and in school health work for coordinating all school health activities and for relating these to community health programs.

Following are abstracts of the papers presented in the symposium. Mimeographed copies of the complete papers are available and may be obtained from the Bureau of Health Education of the American Medical Association.

SCHOOL HEALTH PROBLEMS

I. From the Point of View of a School Physician

J. H. HUMPHREY, M.D.
Director of Hygiene, St. Louis Public Schools, Board of Education
ST. LOUIS

The health program in the St. Louis public schools is divided into three phases: health service, health education and physical education. It is the responsibility of the school authorities to insure the best possible hygienic surroundings for the child while he is in school.

The first consideration in a health service program is an adequate personnel of qualified physicians and nurses. Our program begins before the child enters kindergarten and is carried on until he leaves high school. For the past twelve years we have conducted annual physical examinations of the preschool child. The parent is invited to be present and is shown the existence of any defects and the importance of having them corrected. Many schools have reported 100 per cent parent attendance. All children entering school for the first time who have not had a preschool examination are given the same type of examination, the parent or legal guardian being present.

Physical examinations are conducted every three years during elementary school life and more often, if necessary. Students entering high school and those in the senior year are given a careful examination. Children returning from absences because of serious illness are examined by the school physician. When a child is found to have a physical defect which requires correction, the physician notifies the parent or legal guardian, recommending that the child be taken to the family physician or dentist for advice or treatment.

The school physician also makes examinations to determine physical eligibility for assignment to various special schools and classes for the physically handicapped; to determine physical fitness of pupils desiring to participate in athletics; of pupils seeking work permits; of teachers after leave of absence; of applicants for certain positions in the instruction department; of food handlers in the lunchrooms; of Girl and Boy Scouts, for swimming and other activities; and of students in vocational schools, to guide them into trades and occupations for which they are best fitted physically.

In pursuing the policy of having parents responsible, the nurse visits the home or invites the parent to the school. This brings closer cooperation between home and school. It is the policy of the St. Louis public school system to seek correction of physical defects through the family physician or by means of clinics.

A health record card is kept for each child. These records follow the child from the prekindergarten examination through high school. In addition, all outstanding defects which might interfere with the child's progress in school are recorded on the teacher's cumulative card.

Defective vision and hearing are probably the most important physical defects in relation to school retardation. Audiometer tests have been conducted for the past twelve years by a school nurse. Individual graphic weight charts are kept and the child who fails to gain, or is losing in weight, over a period of three consecutive months is referred by the school nurse to the school physician for examination. A conference is arranged with the parent in order that the cause may be determined, if possible.

Medical care, except for emergency first aid, is not the responsibility of school authorities but is the proper function of the home, in cooperation with the family physician. The school physician acts only in an advisory capacity by informing the parent of physical defects or other conditions which might requre medical care.

The goal for which we should strive is a physical examination for each child at regular intervals during his school life, such examinations to be given preferably by the private physician. However, there will be a large number who cannot or will not go to a private physician and it will then be necessary that these examinations be conducted by the school physician in order that our health program be effective.

II. From the Point of View of a Physical Educator

N. P. NEILSON, PH.D.
Executive Secretary, American Association for Health, Physical Education and Recreation, a Department of the National Education Association
WASHINGTON, D. C.

In dealing with children, parents have always exercised and will continue to exercise certain functions which may be classified as educative and protective. Health protection and health instruction procedures were gradually developed and these together become known as the school health program. Health service and health supervision are a part of this program.

Competent physical educators recognize that the school should assume definite responsibilities or functions in the field of health. These functions include health instruction which implies acquisition of knowledge, development of attitudes, and formation of habits or ways of acting; maintenance of a healthful environment; daily observation and inspection for the control of communicable diseases; insistence on health examinations performed in school or away from school for the discovery of defects which impair health or adversely affect school progress; follow-up service to secure the correction of remedial defects; the hygiene of instruction; prevention and emergency care of injuries; and, in general, adaptation of the school program to the health needs of each individual pupil. In performing these functions the school may do more than help the child maintain his present state of health. However, it is not to be assumed that the school is responsible for the child's total health problem.

The criteria of a satisfactory physical education program, applicable to both elementary and secondary schools, are: (1) a daily program for all pupils enrolled in school; (2) a natural game type of program rather than formal exercises invented by adults for adults; (3) use of a great variety of activities suited to pupils of various age levels; (4) discovery of the needs of pupils through tests and examinations conducted by the physician and the physical education teacher; (5) adaptation of the program to the needs of each pupil; (6) adequate indoor and outdoor equipment and facilities, and (7) well qualified teachers.

The physical educator should know the needs of people and values of activities so he can deliberately adjust or adapt the program to the needs of each individual. The physical educator must have a thorough grounding in the biologic, physical and social sciences. To discover pupil needs, the physical educator should be prepared to make inspections and to give tests and examinations up to the point of a differential diagnosis of pathologic conditions. Up to this point these are his functions as an educator. Beyond this point he must not go but must rely on the services of a physician or of other health service personnel. It is not correct to say "the health of children is in the hands of physicians or of teachers or of the home." Parents, teachers, physicians, nurses, boards of public health and welfare agencies are health experts in different fields and all should work together on a balanced health program.

There is a special need for cooperation of the physician and the physical education teacher. Neither worker has known enough about their mutual problems. The physical educator must have an understanding and just evaluation of the resources of modern medical science and practice.

Physicians need to know more about normal child development and about schools. Physicians generally do not know enough about the hygienic, developmental and corrective values of physical education activities. There is a sincere desire on the part of competent physical education teachers to discuss health problems with school and family physicians and to secure sound advice so that the physical education program may be adapted to pupil needs. Special cooperation is required in the corrective program and in the interscholastic program of athletics for boys.

There is a body of health knowledge and a series of health practices which may be logically and best taught in connection with physical education activities. The physical education teacher should not fail to perform these functions. Similarly biology, science and home economics teachers have health teaching responsibilities. The health instruction which cannot be associated with other activities can best be taught in a separate course, with the problem approach, and by a teacher specially prepared.

III. From the Point of View of a Practicing Physician

WINGATE M. JOHNSON, M.D.
WINSTON-SALEM, NORTH CAROLINA

After carefully reading and rereading the tentative statement of school health policies prepared by the Child Health Section of the American Public Health Association and the committee of the American Academy of Pediatrics, I was quite disappointed. There was almost nothing with which to disagree. Under the circumstances, however, I shall do my best to find some bits to object to, possibly a suggestion or two to offer, and—a much more pleasant task—to agree with as much of the document as time permits.

My first mild objection is to the paragraph stating "The mental health of pupils requires that teaching methods shall give ample opportunity for experiencing success, that disciplinary measures consider pupil personality of greater importance than the rigid application of arbitrary rules and that types of examinations and methods of promotion do not result in discouraging or degrading experiences." While no child should be made to suffer unnecessary humiliation, is there not danger, in trying to save a child momentary embarrassment, of sending him out into the world totally unprepared for the cruel bludgeonings of fate that must inevitably be suffered? To leave the impression on the school child that only rewards are to be expected is mistaken kindness. In the laudable effort to spare "discouraging experiences" there is a widespread tendency to discard such difficult subjects as Latin, Greek and mathematics in favor of the earlier vocational classes, thus depriving the student of an opportunity to develop his mental muscles.

The importance of careful physical examinations preliminary to entering school, and at intervals during school years, can hardly be questioned. Height and weight tables, however, should not be taken too seriously. They represent only the average and make no allowance for individual variation. The laws of heredity should not be forgotten.

A misconception resulting from emphasis placed on defects found in routine examinations is the popular idea that physical faults are always responsible for low IQ's and that their correction will automatically insure a first-class set of brains. Only too often, however, the attempt to take a child out of the repeater class by removing his tonsils and adenoids or straightening his teeth is a praiseworthy but futile effort to thwart the will of the Almighty.

The family doctor should be willing and even eager to cooperate with the school authorities, the school physician and the health department in examining school children, in the control of communicable diseases and in health education. In return, he should be recognized by having children of his families referred to him for preschool and school examinations and for the necessary medical services needed in school examinations and for the necessary medical services needed in school beyond the simple emergencies which the school nurse, athletic instructor or teacher is capable of handling. A simple form of exam-

ination card should be issuued to parents with the request that the children be carried to the family doctor for examination.

I agree heartily with the suggestion that the name and address of each pupil's private physician and dentist be kept as part of the school record. With the paragraph scoring "false emphasis on perfect attendance" I should like fairly to shout my agreement. For many years I have advised the mothers of children under my care to keep their children at home the second day of every school year, so there would be no perfect attendance record to maintain.

The school day for the children in the first three grades should be materially shorter than for the older ones. In the agitation for shorter working days for adults, it is to be hoped that the little folks may be remembered also.

IV. From the Point of View of a School Administrator

HENRY J. GERLING
Superintendent of Instruction, Board of Education, of the City of St. Louis
ST. LOUIS

The development of a health program is a problem of public opinion. It must have the support and confidence of the public. An important aspect is the problem of financial support. It has always been difficult to develop new auxiliary service, however important, at the expense of direct instruction in the school curriculum. The money coming to a school system for its support is limited by law. Every expenditure for auxiliary service reduces the potential fund available for direct teaching.

Among the important features added to the health program of the public school system in St. Louis during the past seventeen years without increasing the rate of school tax, and maintained throughout the economic depression when the total revenue was reduced more than 30 per cent, are included the following:

1. Health teaching as a part of the school curriculum and specialized supervision of the health instruction program.
2. Increase of the number of school physicians and school nurses from fifteen physicians and twenty-seven nurses in 1922, to eighteen full-time and three part-time physicians and forty-three nurses in 1939.
3. Instruction in the use of the audiometer to detect defective hearing.
4. Establishment of schools for crippled children, with bus transportation from every part of the city.
5. Establishment of sight conservation classes.
6. Numerous improvements in the construction and equipment of buildings for the purpose of protecting and promoting health.

Further development of the health program awaits the willingness of the public to raise its legal limit of tax rate in order to provide the necessary funds to support a health program as a necessary and integral part of the schools' function.

Two other recognized responsibilites of the public schools closely related to health are the safety program and the system of summer playgrounds.

The St. Louis Board of Education provides in many ways for children handicapped by health or physical defect. There are sight conservation classes and special attention to speech correction, the deaf and the hard of hearing. There are open air classes and a school for crippled children where two thirds of the children are at present on the schedule for corrective exercises. There is a school for care of Negro pupils who are crippled, deaf, hard of hearing, anemic or in need of special work for sight conservation.

Systematic inspection for contagious diseases has been established in the schools, and the spread of these diseases has since been kept to a minimum. Preschool examinations constitute the latest innovation in promoting school health.

The future of a school health program depends on continued support of public opinion and the willingness of the public to increase the revenues needed for the support of public education on a basis that promotes the ancient but persistent idea of a sound mind in a sound body.

THE TUBERCULOSIS PROBLEM IN THE SCHOOLS

CAMILLE KERESZTURI, M.D.
NEW YORK

Like any other health program, tuberculosis work in schools should start with the education of parents, pupils and teachers. Preventive efforts and their significance should be understood in order to obtain active cooperation. Medical knowledge must be dispensed with application of appropriate psychologic skill so that health consciousness is acquired without nosophobia or hypochondria.

After the education of parents, teachers and pupils is accomplished and their cooperation is obtained, and only then should the actual health program proceed.

Tuberculosis surveys should be done systematically every year.

A simple, inexpensive and effective procedure includes:

1. Tuberculin tests at the beginning of the school term.
2. Chest roentgenograms on all positive reactors.
3. Physical examination; sedimentation rates; sputum examination of pupils whose chest roentgenograms show lesions suggestive of fresh or active tuberculosis.
4. Retesting of all negative reactors six months later.
5. X-ray examination of all positive reactors yearly.

THE STATUS OF HEALTH EDUCATION IN THE SCHOOLS

LLOYD W. KING
Superintendent, Department of Public Schools, State of Missouri
JEFFERSON CITY, MO.

The supervisor of health education of the Missouri state department of education devotes full time to coordinating, promoting and supervising the public school health program.

The school should provide a happy, safe and healthful environment for the child. The physical condition of the schools will be reflected for years to come in improved health of school children. The construction and remodeling of all school buildings seeks to comply with two main objectives: (1) the protection of life; (2) the protection of health.

The public schools have shared substantially in the fast-growing public health program in Missouri. The majority of county nursing services established in the past year are supported in part by public school funds. Teachers are trained to look for deviations from the normal and insist on examination and correction by the family physician. School health demonstrations, designed to show teachers how they may carry on health programs even with limited facilities, cover these fundamentals: morning inspection; vision and hearing tests; handwashing; hot lunch; weighing and measuring; birth registration; first aid.

Providing for the integration of related subjects into large fields, health finds its logical place in the science and the recreation arts area. This arrangement tends to break down the numerous departments of subject matter and permits integration on a functional basis.

Teacher training institutions are setting the pace for health education in our public schools. The state teachers' colleges and the state university are giving increased attention to the health of their students.

Health education in Missouri, as in many states, is just now finding itself in the complete program of education. We are encouraged by the interest of the teachers in doing a better job of teaching health; by the current building and remodeling program providing for environment favorable to health; by the increase in public health service in our state; by the enthusiasm with which our school people have accepted the new courses of study, and by the trend toward improved teacher training facilities. On these foundations it is hoped to build a permanent school health program that will be reflected forever in the improved physical, mental and social health of school children.

COMMUNITY PARTICIPATION IN A HEALTH PROGRAM

THEODORE R. MEYER, M.D., DR.P.H.
Deputy State Health Commissioner, St. Louis County Health Department
CLAYTON, MO.

The public health official of today must have as a part of his armamentarium a well organized program of health education in which the family physician, the layman and the health commissioner must participate. The educative approach of a modern health department is in marked contrast to the methods of force used in the days of the earliest health departments.

The rate of progress of public health work is determined by public acceptance. The objectives, aims and methods of a department of health are less understood by the public than any other branch of state or municipal government and in many respects this fault is often that of the department of health and its personnel.

Human relationship is the fundamental basis of successful public health work. The impression that the health department makes on the public definitely determines whether its work will continue to gain popular support. The people must be familiarized with the values of a health department and what it means to them in their daily routine of living.

In St. Louis County we have incorporated into our program a plan and philosophy of utilizing every community facility that is available. Minimizing the introduction or importation of foreign personnel has a definite bearing on the community interest. Political organizations have been sold on the fact that health department personnel must be employed on the basis of training and qualifications and not because they are sponsored by a political organization. Cooperation from the public officials in our area has made this possible. They realize that the health and welfare of their citizens is far above filling these positions as a political reward.

The department has been cautious in the selection of the nursing personnel, since these individuals represent the department of health in the most intimate relationship with the public.

Public health is an outgrowth of medical practice and it was deemed advisable to place the reorganized county health department in the St. Louis County Hospital and in this way the department took on an atmosphere of a health center. The county officials are exerting every possible effort to make available a properly constructed and adequately equipped building. This health center, in its future plan, recognizes the important role of the family physician and will have provisions for meeting places for the medical society, in order that it may be definitely identified with the department of health activities.

Another avenue of stimulating community interest and participation has been through the cooperation of the social planning council. Last year, as a stimulator of community interest, we thought it advisable in two school districts, which could raise the funds on a matched basis with the state board of health, to provide public health nurses limited to the communities participating. The purpose was to institute a program dealing with all the ramifications of public health, centered around the school in such a small area that it would reach every one. The program has been effectual and has induced other areas to solicit similar programs voluntarily.

The health department cooperates definitely with the St. Louis County Medical Society, and the society has representation and a voice in the policies of our program.

The two salient features of our medical examination program are: (1) transfer examinations of school children from the schools to the family physician's office; (2) change of the term "physical" examination to "medical examination." Through cooperation of the county medical society, 142 physicians have gone on record agreeing to make medical examinations of school children in their offices at designated hours without cost. The program also cooperates with the physician in maternal welfare, venereal disease, tuberculosis and rabies programs, and communicable disease control.

The organized medical profession can make a material contribution to the improvement of public health. Our program of medical participation in health work is profitable to the physician, the health department and the public.

OFFICIAL NOTES

ADDRESSES BY OFFICIAL STAFF

DR. W. W. BAUER:

July 4—National Education Association, Annual Convention, Executive Committee, San Francisco.

July 5—National Education Association, Annual Convention, Representative Assembly and the Symposium on School Health, San Francisco.

July 6—National Education Association, Annual Convention, Conference of Joint Committee on Health Problems in Education, San Francisco.

DR. MORRIS FISHBEIN:

July 12—Miami University, Oxford, Ohio.

DR. R. G. LELAND:

July 19—Tennessee Pharmaceutical Association, Memphis, Tenn.

MR. A. M. SIMONS:

July 16—Economics Committee, American Dental Association, Milwaukee.

MEDICAL LEGISLATION

MEDICAL BILLS IN CONGRESS

Changes in Status.—Senator Sheppard, Texas, has proposed an amendment to H. R. 5452, now pending in the Senate Committee on Finance, providing that, in the administration laws pertaining to veterans, retired enlisted men of the Army, Navy, Marine Corps and Coast Guard who served during a war period as recognized by the Veterans' Administration and who have been honorably discharged from such service, shall be entitled to hospitalization and domiciliary care in Veterans' Administration facilities on parity with other war veterans. Senator Reynolds, North Carolina, has submitted a proposed amendment to S. 2304, now pending in the Senate Committee on Military Affairs, to provide hospitalization for certain persons who have served in the Coast Guard. Senator George, Georgia, has submitted a proposed amendment to H. R. 6635, now pending in the Senate Committee on Finance, to increase from $8,000,000 to $12,000,000 the annual federal appropriation under the Social Security Act to assist states, counties, health districts and other political subdivisions of the states in establishing and maintaining adequate public health services including the training of personnel for state and local health work. Senator Wagner, New York, has submitted a proposed amendment to the same bill, H. R. 6635, that proposes, among other things, to add a new section to the Social Security Act under which to pay disability benefits to certain persons totally and permanently unable to work by reason of illness or injury not arising out of or in the course of employment and to authorize the Social Security Board to provide for the furnishing of medical, surgical, institutional, rehabilitation or other services to individuals entitled to such disability benefits, such services to be furnished by qualified practitioners and by governmental and nongovernmental hospitals and other institutions qualified to furnish such service. H. R. 5762 has been signed by the President, provid-

ing for the temporary postponement of the operations of certain provisions of the Federal Food, Drug and Cosmetic Act. H. R. 6076 has passed the House and has been reported to the Senate, with recommendation that it pass, providing for the registry of pursers and surgeons as staff officers on vessels of the United States.

Bills Introduced.—H. R. 6450, introduced by Representative Voorhis, California, provides that wherever a veteran seeking service connection is shown to have been engaged in combat with the enemy or to have been subjected to other conditions within the zone of advance which can, in good medical judgment, be considered as causing or aggravating the disability or disabilities on which the veteran's claim is based, then the disability or disabilities shall be considered to have been caused or aggravated by military service. H. R. 6652, introduced by Representative Boren, Oklahoma, proposes to authorize the Secretary of Commerce, through the National Bureau of Standards, to establish and publish standards of quality for consumer goods, excepting foods, drugs, cosmetics and other articles for which federal standards are now provided by law, when in his judgment such standards are in the public interest. H. R. 6800, introduced by Representative Zimmerman, Missouri, proposes, among other things, that the same privilege of hospitalization and medical care and treatment accorded to honorably discharged veterans of the Spanish-American War, the Philippine Insurrection, the Boxer Rebellion and the World War shall be extended to honorably discharged veterans of the Moro and Pulajane wars or campaigns, or other campaigns which took place in the Philippine Islands between the dates of July 5, 1902, and Aug. 5, 1913, inclusive.

DISTRICT OF COLUMBIA

Changes in Status.—S. 1805 has been reported to the House with recommendation that it pass, proposing to establish a lien for moneys due hospitals for services rendered in cases caused by negligence or fault of others. H. R. 5238, proposing to regulate the practice of optometry in the District of Columbia, has been reported to the House with recommendation that it pass.

WOMAN'S AUXILIARY

OFFICERS OF THE WOMAN'S AUXILIARY FOR 1939-1940

The following officers have been elected by the Woman's Auxiliary to the American Medical Association for 1939-1940:

President—Mrs. Rollo K. Packard, 6901 Paxton Avenue, Chicago.
President-Elect—Mrs. V. E. Holcombe, 1635 Quarrier Street, Charleston, W. Va.
First Vice President—Mrs. David W. Thomas, 112 West Main Street, Lock Haven, Pa.
Second Vice President—Mrs. Otto C. Hagmeier, 1025 South Prom, Seaside, Ore.
Third Vice President—Mrs. M. B. Van Cleave, 505 South Fourth Street, Terre Haute, Ind.
Fourth Vice President—Mrs. W. K. West, 233 Northwest Thirty-Third Street, Oklahoma City.
Treasurer—Mrs. E. E. Fisher, Multnomah County Hospital, Portland, Ore.
Recording Secretary—Mrs. John L. Bauer, 984 Bushwick Avenue, Brooklyn.
Corresponding Secretary—Mrs. Lucius Cole, 1117 Lathrop Avenue, River Forest, Ill.
Directors, one year—Mrs. Charles C. Tomlinson, 5215 Jackson Street, Omaha.
Mrs. J. C. Geiger, 50 Ventura Avenue, San Francisco.
Mrs. R. E. Mosiman, 2706 Tenth Avenue, North Seattle, Wash.
Mrs. E. W. Veal, 1936 San Marco Boulevard, Jacksonville, Fla.
Directors, two years—Mrs. Frank N. Haggard, 615 East Olmos Drive, San Antonio, Texas.
Mrs. James D. Lester, Granny White Pike, Nashville, Tenn.
Mrs. Claude L. Shields, 1234 East Seventh South Street, Salt Lake City.

CHAIRMAN OF STANDING COMMITTEES

Archives—Mrs. Herbert B. Henkel, 2135 Wiggins Avenue, Springfield, Ill.
Exhibits—Mrs. Ily R. Beir, 114 South Virginia Avenue, Atlantic City, N. J.
Finance—Mrs. James Blake, Hopkins, Minn.
Historian—Mrs. John J. Ryan, 2153 Iglehart Avenue, St. Paul.
Hygeia—Mrs. Eben J. Carey, 6119 West Wisconsin Avenue, Wauwatosa, Wis.
Legislation—Mrs. Arthur A. Herold, 1166 Louisiana Avenue, Shreveport, La.
Organization—Mrs. David W. Thomas, 112 West Main Street, Lock Haven, Pa.
Parliamentarian——Mrs. James F. Percy, 1030 South Alvarado Avenue, Los Angeles.
Press and Publicity—Mrs. James P. Simonds, 25 East Walton Place, Chicago.
Printing and Supplies—Mrs. Frank E. Coffey, 1910 Fort Street, Hays, Kan.
Program—Mrs. Walter F. Donaldson, 4724 Bayard Street, Pittsburgh.
Public Relations—Mrs. R. E. Mosiman, 2706 Tenth Avenue, North Seattle, Wash.
Revisions—Mrs. Arthur B. McGlothlan, 821 North Twenty-Fourth Street, St. Joseph, Mo.

Delaware

At an open meeting of the auxiliary to the Medical Society of Delaware in Wilmington February 27 the speakers were Dr. Warren S. Reese of the Hospital of the University of Pennsylvania and Mrs. Augustus S. Kech of Altoona, Pa., former president of the auxiliary to the American Medical Association. The meeting, which was largely attended by representatives of various organizations of the city and vicinity, was followed by a tea and reception.

Illinois

The auxiliary to the Chicago Medical Society held a meeting at the Medical and Dental Arts Building recently. Dr. Eben J. Carey, professor of anatomy and dean of the School of Medicine of Marquette University, Milwaukee, addressed the auxiliary on "Scientific Medicine and the Public." Honorary membership was conferred on Mrs. Rollo K. Packard, president-elect of the auxiliary to the American Medical Association, by Mrs. Frank G. Murphy, president of the auxiliary to the Chicago Medical Society.

Other meetings have been held by groups in various sections of the city. At the Irving Park Branch Mr. A. M. Simons of the American Medical Association was speaker; at the Jackson Park Branch Mrs. F. P. Hammond conducted a round table on "Socialized Medicine," and a paper was read on "Legislation in Relation to Medicine and Socialized Medicine"; at the North Shore Branch meeting Mr. J. E. Clegg, assistant special agent in charge of the Bureau of Investigation, U. S. Department of Justice, was speaker, and a paper on "State Medicine" was read by Mrs. H. P. Saunders.

Kansas

Dr. Martin Palmer addressed the auxiliary to the Sedgwick County Medical Society in February on "Child Speech Defects." The auxiliary to the Cloud County Medical Society recently assisted in the program of the Women's Field Army for the Control of Cancer in Concordia.

Through the efforts of the auxiliary to the Labette County Medical Society, announcement of the American Medical Association radio program has been regularly published in the Parsons *Sun*. The auxiliary to the Ford County Medical Society has placed *Hygeia* in fifteen grade schools in the district this year and will place it in the rural schools for a six months' period beginning September 1939.

Missouri

The auxiliary to the Cass County Medical Society recently gave a special program in honor of pioneer physicians of the state.

The auxiliary to the Jackson County Medical Society held an Endowment Tea recently for the benefit of the Jackson County Medical Society Library. At a luncheon meeting of the auxiliary at St. Joseph Hospital recently, Rabbi Samuel S. Mayerberg was the speaker.

Dr. James S. Chapman, director of the Bureau of Child Hygiene of the State Board of Health, addressed the auxiliary to the Cole County Medical Society on "Problems of Maternal and Infant Welfare as Handled by the State Board of Health."

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

ARKANSAS

Dr. Cromer Appointed Dean at Arkansas.—Dr. Stuart P. Cromer of the staff of the Council on Medical Education and Hospitals, American Medical Association, Chicago, has been appointed dean of the University of Arkansas School of Medicine, Little Rock, succeeding Dr. Frank Vinsonhaler. Dr. Cromer graduated at Northwestern University Medical School, Chicago, in 1935. From 1935 to 1937 he was assistant superintendent of the Illinois Research and Educational Hospital, Chicago. He was medical director of Baylor University Hospital, Dallas, Texas, from 1937 until April 1938, when he joined the staff of the American Medical Association.

CALIFORNIA

Mussels Placed Under Quarantine.—A quarantine order has again been issued by the state department of health prohibiting the taking, sale or offering for sale of mussels gathered along the ocean shore from the southern boundary of Los Angeles County to the California-Oregon boundary line, excepting the bay of San Francisco. The ban is effective from June 1 to September 30.

Dr. Stampar to Have New Post at California.—Dr. Andriya Stampar, professor of social medicine, State University, Zagreb, Yugoslavia, has been named to the newly created post of Rosenberg professor in the public social sciences at the University of California, Berkeley. Dr. Stampar will be the first to hold the position, which was created by a gift from the Rosenberg Foundation of San Francisco. A graduate of the University of Vienna, Dr. Stampar formerly served as director of health of Yugoslavia. He was adviser on health matters to the National Government of the Chinese Republic from 1933 to 1936, when he became expert on health matters to the health section of the League of Nations. In 1938 he was a visiting lecturer under the Rockefeller Foundation in the United States. While on the Berkeley campus he will give two courses, one for graduate students and one for upper division students. He will also deliver a series of public lectures on the campus and, by special conditions of the foundation grant, will be enabled to visit other parts of the state for lectures and consultations, according to the university *Clip Sheet*.

COLORADO

Mid-Summer Radiological Conference.—The Mid-Summer Radiological Conference will be held in Denver July 24-29 under the auspices of the Denver Radiological Club. According to the preliminary program, the guest speakers will be: Drs. Hans A. Jarre, Detroit; James F. Kelly, Omaha; Sherwood Moore, St. Louis; Bernard H. Nichols, Cleveland; Wendell G. Scott, St. Louis; Paul F. Titterington, St. Louis, and Mrs. Edith H. Quimby and Helen Quincy Woodard, Ph.D., both of New York. There will be round table discussions on miscellaneous subjects and symposiums on the radiation therapy of inflammations; radiation therapy of the diseases of the blood and the blood forming organs, and urology.

CONNECTICUT

Society News.—The Yale Medical Society was addressed May 10 by Dr. Thomas Francis Jr., New York, on "Studies of Immunity to the Virus of Epidemic Influenza." The society was addressed April 17 by F. G. Young, Ph.D., London, on "The Influence of Diabetogenic Pituitary Extract on Normal Animals."——The New Haven Ophthalmological Society was organized April 17; officers include Drs. Eugene M. Blake, New Haven, president, and Frederick A. Wies, New Haven, secretary.

State Medical Election.—Dr. Arthur B. Landry, Hartford, was chosen president-elect of the Connecticut State Medical Society at the recent annual session and Dr. Joseph I. Linde, health officer of New Haven, was installed as president. Other officers include Drs. Charles E. Sanford, New Haven; Wilmarth Bradford Walker, Cornwall, vice presidents; Creighton Barker, New Haven, executive secretary. The 1940 convention will be held in Hartford. The society voted at this meeting to employ a full time executive secretary commencing Jan. 1, 1940, as recommended by the council; for this purpose the dues for 1940 were set at $15. Endorsement was also given to house bill 106 creating a commission to study the problem of physical and mental disabilities among the people of the state and methods for prevention and care.

ILLINOIS

Society News.—At a meeting of the Madison County Medical Society in Madison June 2 the speakers were Drs. James E. Graham, Springfield, "Backache"; Walter R. Fischer, Chicago, "Common Disorders of the Foot," and Emil D. W. Hauser, Chicago, "Derangements of the Knee Joints."

Postgraduate Courses in Obstetrics and Pediatrics.—The departments of obstetrics and pediatrics of the University of Illinois cooperating with the staffs of the medical schools of Chicago and the state department of public health will again offer a series of one week courses at the Research and Educational Hospital, Chicago. Each course begins Monday morning at 9 o'clock and ends at noon on Saturday. The courses will open July 10 and end with the week of August 28. The registration is limited to twenty; physicians outside Chicago will be given the preference. The registration fee of $10 should be sent with the application to Mr. G. R. Moon, 1853 West Polk Street, Chicago.

Chicago

Course in Electrocardiography.—The cardiovascular department of Michael Reese Hospital will conduct a full time course in electrocardiography, August 21-September 2, under the direction of Dr. Louis N. Katz, director of cardiovascular research. Reservations may be made on receipt of $10, which will be applied on the tuition. Additional information may be obtained from the hospital, Twenty-Ninth Street and Ellis Avenue.

Course in Syphilis.—A postgraduate course in syphilis is being offered by the department of dermatology of the University of Illinois College of Medicine in cooperation with various departments of the university. A grant from the federal government with the approval of the state department of public health is financing the course. With lectures, laboratory demonstrations and the presentation of hospital and dispensary clinical material, the course is designed to offer to the practitioner a review of the subject and a discussion of recent developments. The first period of the course, which will continue for one week, opened June 19. It will be repeated once each month during the summer. Only licensed physicians will be accepted. The number of registrants for any one period will be limited to twenty and the course will not be offered to less than six. Those registering will be accepted in the order of application. Applications together with a check covering the registration fee of $10, made payable to the University of Illinois, should be sent to the Examiner and Recorder, 1853 West Polk Street.

Dr. Sappington Wins First Knudsen Award.—Dr. Clarence O. Sappington, Chicago, received the first W. S. Knudsen Award for the most outstanding contribution to industrial medicine during 1938-1939. The award was made on the basis of his book "Medicolegal Phases of Occupational Diseases." Mr. W. S. Knudsen, president of the General Motors Corporation, made the presentation at the annual meeting of the American Association of Industrial Physicians and Surgeons in Cleveland June 7. Dr. Sappington graduated at Stanford University School of Medicine, San Francisco, in 1918. He has had extensive industrial affiliations, serving, among other things, as assistant surgeon, U. S. Public Health Service; medical director, western division, Montgomery Ward & Company, and director of the division of industrial health, National Safety Council, Chicago. Since 1932 he has been a consultant in industrial hygiene, industrial medicine and occupational diseases. He is said to be the first American to receive the degree of doctor of public health in the field of industrial hygiene, conferred by Harvard University in 1924.

IOWA

Clinical Meeting in Iowa City.—Dr. Raymond S. Grossman, Marshalltown, was elected president of the Iowa Clinical Medical Society at its meeting in Iowa City April 14; Dr. Ernest E. Shaw, Indianola, vice president, and Dr. James Stuart McQuiston, Cedar Rapids, secretary-treasurer. Members of the staff of the State University of Iowa College of Medicine

were among the speakers: Drs. Horace M. Korns, "Influence of Pulmonary Emphysema on the Heart"; Harry P. Smith, "Possible Uses of Purified Thrombin"; Ruben Flocks, "Treatment of Renal Calculi"; James A. Greene, "Treatment of Hypoparathyroidism with A T-10," and Alto E. Feller, "Treatment of Hay Fever."

KENTUCKY

Dr. Abell Honored.—Dr. Irvin Abell, Louisville, immediate past president of the American Medical Association, received the honorary degree of doctor of laws, honoris causa, at the annual commencement of Marquette University, Milwaukee, June 9. Dr. Abell was similarly honored by Georgetown University, Washington, D. C., with the degree of doctor of science, conferred June 3.

Society News.—Dr. Harry Beckman, Milwaukee, addressed the Jefferson County Medical Society, Louisville, June 5, on chemotherapy. Drs. Argus D. Willmoth and Winston U. Rutledge, Louisville, addressed the society June 19 on "Treatment of Carbuncles" and "Annular Skin Lesion of the Body Mistaken for Ringworm Infection" respectively.——Dr. Moses W. Howard, Harlan, addressed the Letcher County Medical Society, Whitesburg, recently on "Gonorrhea and Its Complications."——Dr. Wiley E. McWilliams, Brodhead, recently addressed the Rockcastle County Medical Society, Mount Vernon, on dementia praecox.——Dr. Charles B. Johnson, Russell, addressed the Greenup County Medical Society, Greenup, May 12 on treatment of pneumonia with sulfapyridine.

MAINE

Society News.—The Portland Medical Club devoted its meeting April 4 to a symposium on the liver with the following speakers: Drs. Donald H. Daniels, Langdon T. Thaxter, Mortimer Warren, William D. Anderson and George A. Tibbetts.——At a meeting of the Kennebec County Medical Association in Togus May 18, the speakers were Drs. Charles P. Shelton, Boston, on "Bleeding During Pregnancy" and Joseph H. Shortell, Boston, "Treatment of Fractures of the Neck of the Femur." The society held a clinical session.——Dr. Siegfried J. Thannhauser, Boston, addressed the Knox County Medical Association in Rockland April 11 on "Vitamin Deficiencies."——Dr. Richard H. Overholt, Brookline, Mass., among others, discussed "Some New Developments in the Management of Chest Lesions" before the Cumberland County Medical Society April 21.

MASSACHUSETTS

Symposium on Carcinoma of the Tongue.—The staffs of the Massachusetts General, Collis P. Huntington Memorial, Pondville and Palmer Memorial hospitals arranged a symposium on carcinoma of the tongue June 13 at the Palmer Memorial Hospital, Boston. A review of cases seen at each of the hospitals was presented by Drs. Roy E. Mabrey, Ira T. Nathanson, Thomas J. Anglem and Clifford C. Franseen.

MINNESOTA

Personal.—Dr. Paul A. O'Leary, Rochester, has been appointed a member of the National Advisory Health Council.——Dr. Ruth E. Boynton, associate professor of preventive medicine and public health, University of Minnesota Medical School, Minneapolis, has been appointed to the state board of health.——Dr. William Randolph Lovelace II, Rochester, gave a lecture at Guy's Hospital, London, recently on the use of high concentrations of oxygen and of helium and oxygen mixtures.——Dr. James T. Christison, St. Paul, has resigned as a member of the editing and publishing committee of the state medical society, ending twenty years' service. He has been succeeded by Dr. Gage Clement, Duluth. Dr. Christison served as president of the Ramsey County Medical Society in 1917 and of the Minnesota State Medical Association in 1929. Recently he has been a member of the House of Delegates of the American Medical Association.

MISSOURI

State Medical Election.—Dr. Cyrus E. Burford, St. Louis, was chosen president-elect of the Missouri State Medical Association at its recent annual session and Dr. James R. McVay, Kansas City, was installed as president. Mr. Elmer H. Bartelsmeyer, St. Louis, who has been assistant secretary for a number of years, was appointed executive secretary of the association at this meeting. The next annual session will be held in Joplin, the date to be determined later.

MONTANA

Annual Clinic.—The Yellowstone Valley Medical Society held its annual spring clinic in Billings May 1. Among the speakers were Drs. Robert F. E. Stier, Spokane, Wash., on allergy; Richard R. Chapple, some common rectal conditions; Harry O. Drew, goiter; Wayne Gordon, collapse therapy in tuberculosis outside the sanatorium, and Dolon Ernest Hodges, obstructions of the lower genito-urinary tract.

NEBRASKA

State Medical Meeting and Election.—The seventy-first annual meeting of the Nebraska State Medical Association was held in Grand Island May 1-4. The following guests appeared on the scientific program:

Dr. Archibald F. O'Donoghue, Sioux City, Iowa, Fractures of the Hip—A Plea for Internal Fixation.
Dr. J. Albert Key, St. Louis, Treatment of Compound Fractures.
Dr. Oscar L. Miller, Charlotte, N. C., Miscellaneous Use of Metal Fixation in Bone Surgery.
Dr. Edward H. Rynearson, Rochester, Minn., Practical Suggestions in the Treatment of Diabetes Mellitus.
Dr. Franklin G. Ebaugh, Denver, The Psychoneuroses in the General Practice of Medicine.
Dr. James Kerr Anderson, Minneapolis, The Itching Anus; Office Treatment of Rectal and Anal Diseases.
Dr. Grayson L. Carroll, St. Louis, Early Prostatism; The Urologist Turns to Medicine.
Dr. French K. Hansel, St. Louis, Nasal Allergy; Recent Advances in the Diagnosis and Treatment of Nasal and Sinus Disease.
Dr. Robert L. Schaefer, Detroit, Glandular Preparations—Uses and Abuses; Diagnosis and Treatment of Sexual Immaturity.

At the annual dinner Dr. Rock Sleyster, Wauwatosa, Wis., then President-Elect of the American Medical Association, spoke on "Medical Problems of the Day" and Dr. Ebaugh on "A State Program for Mental Health." Dr. Clayton F. Andrews, Lincoln, was named president-elect; Drs. Glen E. Peters, Randolph, and Henry R. Miner, Falls City, were elected vice presidents and Dr. Roy B. Adams, Lincoln, reelected secretary. Dr. Arthur L. Miller, Kimball, is the president for 1939.

NEW JERSEY

State Medical Election.—Dr. Watson B. Morris, Springfield, was chosen president-elect of the Medical Society of New Jersey at the annual meeting in Atlantic City June 6-8 and Dr. Edward Mathias Zeh Hawkes, Newark, was installed as president. Dr. Thomas K. Lewis, Camden, was named first vice president and Dr. Elias J. Marsh, Paterson, second vice president. Honorary awards were presented to Drs. Andrew F. McBride for outstanding service as mayor of Paterson and in other civic and medical activities; Stanley H. Nichols, Long Branch, for his work on the state board of health; Berthold S. Pollak, Jersey City, for work among the tuberculous, and Edward J. Ill, Newark, as a pioneer surgeon.

NEW MEXICO

State Medical Election.—Dr. William B. Cantrell, Gallup, was chosen president-elect of the New Mexico Medical Society at the annual meeting in Gallup May 12, and Dr. George T. Colvard, Deming, was installed as president. Dr. Leo B. Cohenour, Albuquerque, is secretary. The 1940 session will be held in Albuquerque.

NEW YORK

Society News.—Dr. Hugh H. Young, Baltimore, addressed the Medical Society of the County of Albany May 24 on "Genital Abnormalities, Hermaphroditism and Related Adrenal Diseases."——At a meeting of the Dutchess County Medical Society at Castle Point May 11 the speakers were Drs. Samuel A. Beddall on "Pathologic Indications for Collapse Therapy in Pulmonary Tuberculosis"; Clarence J. Goebel, "Surgical Treatment of Pulmonary Tuberculosis," and Reuben I. Shapiro, "Thoracoplasty in the Fifth and Sixth Decades."——Dr. Winfield W. Scott, Rochester, addressed the Oswego County Medical Society, Oswego, May 24 on diseases of the prostate.——Dr. Maurice J. Whitelaw, Binghamton, addressed the Broome County Medical Society, Binghamton, May 9 on "A Theoretical and Clinical Consideration of Ovarian Hormones."

New York City

Fund for Research in Bacteriology and Sanitary Science.—The New York Academy of Medicine announces the establishment of the Robert Livingston Seaman Fund by the terms of the will of the late Dr. Seaman. The academy has $600 for assignment in 1939 for research in bacteriology or

sanitary science, either as grants for investigation or scholarships for research. Expenditures may be made for technical help, aid in publishing original work and purchase of necessary books or apparatus. Applications will be received from institutions or individuals up to September 15 by a committee of which Dr. Wilson G. Smillie is chairman. Communications should be addressed to Dr. Smillie at 2 East One Hundred and Third Street.

NORTH CAROLINA

State Medical Meeting and Cruise.—The Medical Society of the State of North Carolina held its annual session during a cruise to Bermuda, May 9-14. Sessions were held on board the *Queen of Bermuda* and the party spent two days in Hamilton in sightseeing and entertainment. Dr. Hubert B. Haywood, Raleigh, was named president-elect and Dr. William Allan, Charlotte, was installed as president. Drs. Franklin Webb Griffith, Asheville, and Franklin C. Smith, Charlotte, were elected vice presidents. Among the speakers were Drs. Alexis F. Hartmann, St. Louis, and Benjamin P. Watson, New York.

Tuberculosis Seminar.—The Buncombe County Medical Society will present its third annual seminar on tuberculosis at the Medical Library in Asheville July 10-16. In addition to addresses on various phases of tuberculosis, there will be clinical conferences, demonstrations of artificial pneumothorax and of laboratory procedures and visits to the U. S. Veterans' Administration Facility at Oteen and to the State Sanatorium at Black Mountain. There will be one evening meeting when Dr. David T. Smith, Durham, will speak on "The Harmful Effect of Routine Therapy for Tuberculosis When Applied to Nontuberculous Conditions Simulating Tuberculosis." Dr. Karl Schaffle, Asheville, is chairman of the seminar.

OHIO

Society News.—Dr. Paul I. Hoxworth, Cincinnati, addressed the Montgomery County Medical Society, Dayton, May 19 on blood transfusion.——Dr. August A. Werner, St. Louis, addressed the Mahoning County Medical Society, Youngstown, June 20 on "The Influence of the Ductless Glands on Growth and Development."

Student Prizes at Western Reserve.—Jacob B. Tuckerman, a member of the 1939 graduating class at Western Reserve University School of Medicine, Cleveland, received the senior prize in surgery, the gift of Dr. Elliott C. Cutler, Boston, formerly of the medical school faculty. Mr. Tuckerman also received the senior prize in obstetrics, the gift of the late Dr. Edwin C. Garvin. R. Wenner Machamer, member of the freshman class, received the Dr. Herbert S. Steuer prize for special work in anatomy.

PENNSYLVANIA

Personal.—Dr. Frederick W. Heyer, surgeon in chief of the Nanticoke State Hospital, was honored with a testimonial dinner April 30 by thirty-nine physicians of the staff and vicinity, marking twenty-five years of service.——Drs. Seymour T. Schmehl, Reading, and James G. Matternes, Sinking Spring, were approved for affiliate membership by the Berks County Medical Society at a recent meeting. Dr. Schmehl has been a member since 1892 and Dr. Matternes since 1903.——Dr. Samuel O. Pruitt, Philadelphia, has resigned as medical secretary of the Pennsylvania Tuberculosis Society and Dr. Clarence R. Phillips, Harrisburg, has taken over his duties for a year with the title of medical supervisor.

Philadelphia

Personal.—Mr. Steven M. Spencer, science reporter of the Philadelphia *Evening Bulletin*, has received a Nieman Fellowship for a year of study at Harvard University, Cambridge, Mass. These fellowships were established in 1937 through a gift to Harvard from Mrs. Agnes W. Nieman, widow of the founder of the Milwaukee *Journal*, to give newspapermen an opportunity for an academic year of unrestricted study in special fields. Mr. Spencer, a native of Omaha, graduated from the University of Pennsylvania in 1928 and joined the *Bulletin* the same year. He has specialized in science since 1933. At Harvard he will study physiology, chemistry, anthropology, physics, sociology and the history of science.

Three Deaths from Spotted Fever.—Nine cases of Rocky Mountain spotted fever with three deaths have been reported from Philadelphia and the adjoining area in Delaware, according to newspaper reports. The state department of health has arranged for immediate blood tests in state laboratories, and physicians are urged to send specimens from suspected cases. The Philadelphia County Medical Society and the College of Physicians of Philadelphia, through their committees on preventive medicine, have asked all persons who have tick-infested dogs to remove the ticks alive and send them to Jefferson Medical College, where a research group has arranged a study to determine what proportion of ticks are carriers of the spotted fever organism. Last year there were seven deaths from the disease in the Philadelphia area, it was reported. Arrangements have been made with the U. S. Public Health Service for distribution of vaccine through the state department of health.

RHODE ISLAND

New State Medical Board.—A new board of medical examiners was recently appointed for Rhode Island. Following are the members: Drs. Wilfred Pickles and Robert M. Lord, Providence, and James H. Prior, Cranston.

Society News.—Dr. Paul W. Preu, New Haven, Conn., addressed the Rhode Island Society for Neurology and Psychiatry recently on "Symptomatic Psychoses with Special Reference to Bromide Intoxications" and Dr. Edwin F. Gildea, New Haven, on "Relationship of Vitamin Deficiencies to Neurological and Psychiatric Problems."

WASHINGTON

Hospital News.—Dr. Thomas J. Fatherree Jr., Birmingham, Ala., has been appointed head of the new McKay Memorial Research Hospital at Soap Lake for the treatment of Buerger's disease.

Plague Infection.—According to *Public Health Reports*, plague infection was proved in a pool of forty-four fleas collected from four ground squirrels, Citellus townsendi, shot April 25 at a location 4 miles west of Rocky Ford and 17 miles northwest of Ritzville, Lincoln County.

WEST VIRGINIA

Society News.—Drs. Robert King Buford and Pat A. Tuckwiller, Charleston, addressed the Logan County Medical Society, Logan, May 10 on "Surgical Aspects of Duodenal Ulcer" and "Diagnosis and Medical Management of Duodenal Ulcer" respectively.——Dr. William M. Sheppe, Wheeling, addressed the Monongalia County Medical Society, Morgantown, May 2 on "Classifications and Methods of Treatment of Syphilis of the Central Nervous System."——Dr. Philip W. Brown, Rochester, Minn., addressed the Kanawha Medical Society, Charleston, May 9 on "Diagnosis and Management of the Irritable Colon Syndrome."——Dr. Eldridge L. Eliason, Philadelphia, addressed the Ohio County Medical Society, Wheeling, May 5 on "Surgical Jaundice."

WISCONSIN

Institute on Blood and Blood-Forming Organs.—The University of Wisconsin Medical School, Madison, announces an Institute for the Consideration of the Blood and Blood-Forming Organs September 4-6. The program will include papers and round table discussions by European and American workers in the field of hematology. The following papers will be presented:

Dr. L. J. Witts, Oxford, England, Anemias Due to Iron Deficiency.
Dr. E. Meulengracht, Copenhagen, Denmark, Some Etiologic Factors in Pernicious Anemia and Related Macrocytic Anemias.
Dr. Cecil J. Watson, Minneapolis, The Porphyrins and the Diseases of the Blood.
Dr. Cornelius P. Rhoads, New York, Aplastic Anemia.
Dr. Harry Eagle, Baltimore, The Coagulation of Blood.
Dr. George R. Minot, Boston, Anemias of Nutritional Deficiency.
Dr. Russell L. Haden, Cleveland, The Nature of the Hemolytic Anemias.
Dr. Jacob Furth, New York, Experimental Leukemia.
Dr. Claude E. Forkner, New York, Monocytic Leukemia and Aleukocythemic Leukemia.
Dr. Edward B. Krumbhaar, Philadelphia, Hodgkin's Disease.
Dr. Louis K. Diamond, Boston, The Erythroblastic Anemias.
Dr. Edwin E. Osgood, Portland, Ore., Marrow Cultures.
Dr. Charles A. Doan, Columbus, Ohio, The Reticulo-Endothelial System.
Hal Downey, Ph.D., Minneapolis, Infectious Mononucleosis.
Dr. Paul Reznikoff, New York, Polycythemia.

Physicians and others interested are invited to attend the institute. Information may be obtained from Dr. Ovid O. Meyer, chairman of the program committee, University of Wisconsin Medical School, Madison, or from the University News Bureau, 711 Langdon Street, Madison.

GENERAL

New Fellows of American Academy of Arts and Sciences.—At the annual meeting of the American Academy of Arts and Sciences in Boston May 10 the following were elected new fellows: Gregory Pincus, Sc.D., Harvard University,

Cambridge, Mass.; Drs. Arturo Rosenblueth and William Thomas Salter, Harvard Medical School, Boston, and Dr. Frederick F. Russell, Boston. Dr. Walter B. Cannon, Boston, was elected vice president for class II of the academy.

Students in Extramural Schools Barred by National Board.—The National Board of Medical Examiners at its annual meeting April 23 made a ruling that students matriculating after July 1 in the extramural schools of Scotland and Ireland would not be admitted to the board's examination. The schools affected are: St. Mungo's College and Anderson College, Glasgow; School of Medicine of the Royal Colleges, Edinburgh, and the Royal College of Surgeons, Dublin. Dr. Norris W. Vaux, Philadelphia, was elected a member of the board for the division in obstetrics. The licensing boards of New York and New Jersey have recently taken similar action on the extramural schools.

Science Congress to Have Health Section.—The Sixth Pacific Science Congress will be held at the University of California, Berkeley, July 24 to August 12. The main divisions of the program of the public health and nutrition section will deal with epidemiology of diseases of the Pacific Basin; nutritional problems, industrial hygiene and health education. Dr. Karl F. Meyer of the Hooper Foundation for Medical Research, University of California, San Francisco, is general chairman for this program and Leland S. McClung, Ph.D., also of the Hooper Foundation, is secretary. Dr. Royd R. Sayers, U. S. Public Health Service, will be chairman of the sessions on industrial hygiene; Agnes Fay Morgan, Ph.D., University of California, Berkeley, nutrition, and Dr. William P. Shepard, Stanford University School of Medicine, San Francisco, public health education.

Regional Meeting on Physical Therapy.—The Southeastern section of the American Congress of Physical Therapy is holding its first scientific session July 10 in Jacksonville, Fla. Among the papers to be presented are:

Dr. Edward F. Carter, Tampa, Fla., Ultraviolet Radiation.
Dr. Charles E. Irwin, Warm Springs, Ga., Obscure Deformities in Poliomyelitis.
Dr. Hal M. Davison, Atlanta, Evaluation of Hyperpyrexia in General Medicine.
Dr. Abraham R. Hollender, Miami Beach, Fla., Short Wave Diathermy in Nasal Sinusitis.
Drs. Lawson Thornton and James Calvin Sandison, Atlanta, Relation of Physical Therapy to Orthopedics.

At an evening session there will be addresses by the following:

Howard A. Carter, B.S. in M.E., secretary, Council on Physical Therapy, American Medical Association, Chicago, The Work and Function of the Council on Physical Therapy.
Dr. Frank H. Krusen, Rochester, Minn., Physical Treatment of Arthritis.
Dr. Nathan H. Polmer, New Orleans, The Value of Physical Therapy in Industrial Medicine.

Symposium on Visual Fatigue.—Representatives of several research interests and institutions attended a symposium on visual fatigue in Washington, D. C., May 20-21. The gathering was held at the suggestion of the committee on scientific aids to learning of the National Research Council, which will probably undertake research in the general field of visual fatigue. Among the speakers were:

Walter R. Miles, Ph.D., New Haven, Conn., The Visual Fatigue Problem.
George Wald, Ph.D., Biological Laboratories, Harvard University, Cambridge, Mass., The Chemical Basis of Visual Adaptation.
Clarence H. Graham, Ph.D., Psychology Laboratory, Brown University, Providence, R. I., Frequency of Nerve Impulse Discharge as a Function of Time After Onset of Illumination.
Selig Hecht, Ph.D., New York, Relation Between Visual Acuity and Illumination.
Brian O'Brien, Ph.D., Institute of Optics, University of Rochester, Rochester, N. Y., Iris Measurements.
Perley G. Nutting Jr., Research Laboratories, Eastman Kodak Company, Rochester, N. Y., The Influence of Flicker Fatigue on Flicker Frequency.
Dr. Alfred Bielschowsky, Dartmouth Medical School, Hanover, N. H., Influence of Fatigue on the Mechanism Involved in Binocular Cooperation.
Frank K. Moss, Lighting Research Laboratory, General Electric Company, Nela Park, Cleveland, Visibility and Ease of Seeing.
Ross A. McFarland, Ph.D., Fatigue Laboratory, Harvard Medical School, Boston, The Effects of Anoxia on Certain Visual Functions.
Miles A. Tinker, Ph.D., Psychology Laboratory, University of Minnesota, Minneapolis, Visual Fatigue in the Reading of Print.
Dr. Walter F. Dearborn, Psycho-Educational Clinic, Harvard University, Cambridge, On the Relations of Visual Fatigue to Reading Disability.
Dr. Robert K. Lambert, Institute of Ophthalmology, Columbia University, New York, The Spasmogenic Tendency and Its Effect on the Eyes.
Harry M. Johnson, Ph.D., Department of Psychology, Tulane University, New Orleans, Rival Motions of the Nature of Physiological Impairment.

Special Society Elections.—Dr. Albert C. Snell, Rochester, N. Y., has resigned as president-elect of the American Academy of Ophthalmology and Otolaryngology because of ill health and Dr. Frank E. Brawley, Chicago, has been elected by the council of the academy to succeed him. Dr. Brawley will take office Jan. 1, 1940.——Dr. Robert L. Benson, Portland, Ore., was named president-elect of the American Society for the Study of Allergy at the annual meeting in St. Louis May 14-15. Dr. Warren T. Vaughan, Richmond, Va., became president; Dr. Milton B. Cohen, Cleveland, was elected vice president and Dr. James Harvey Black, Dallas, Texas, secretary.——Dr. Richard B. Dillehunt, Portland, Ore., was elected president of the Pacific Coast Surgical Association at its annual meeting in San Francisco and Del Monte, Calif., in March and Dr. William A. Taylor, Ellensburg, Wash., vice president. The 1940 meeting will be held in Portland.——Dr. Gustav L. Kaufmann, Chicago, was elected president of the American Association of Medical Milk Commissions at its annual meeting in St. Louis May 15-16. Dr. Paul B. Cassidy, Philadelphia, was reelected secretary.——Dr. Austin A. Hayden, Chicago, was elected president of the American Society for the Hard of Hearing at the annual meeting in New York in June.——Dr. Benjamin P. Potter, Jersey City, N. J., was elected president of the American Academy of Tuberculosis Physicians at the annual meeting in St. Louis in May. Vice presidents elected were: Drs. John B. Crouch, Colorado Springs, Colo., and James H. Stygall, Indianapolis; Dr. Arnold Minnig, Denver, was reelected secretary.——Dr. Henry H. Turner, Oklahoma City, was elected president of the American Therapeutic Society at the annual meeting in St. Louis May 13. Vice presidents elected were Drs. Garold V. Stryker, St. Louis; Chevalier L. Jackson, Philadelphia, and Edwin C. Hamblen, Durham, N. C. Dr. Oscar B. Hunter, Washington, D. C., was elected secretary.——Dr. James A. Babbitt, Philadelphia, was elected president of the American Laryngological Association at the annual meeting in Rye, N. Y., May 24-26, and Dr. Charles J. Imperatori, New York, secretary.

FOREIGN

British Medical Association.—The one hundred and seventh annual meeting of the British Medical Association will be held in Aberdeen, Scotland, July 21-28. The scientific meetings will be in sixteen sections meeting July 26-28, the preceding days being occupied with the "annual representative meeting" and other preliminary conferences. Among the speakers at the section meetings will be Drs. Philip D. Wilson, New York, who will open a discussion of "The Painful Shoulder"; Winchell McK. Craig, Rochester, Minn., "The Surgical Treatment of Hypertension" and Chevalier Jackson, Philadelphia, "The Role of the Bronchoscopist in the Diagnosis and Treatment of Bronchopulmonary Disease." Dr. Colin D. Lindsay, Plymouth, is president and Dr. Thomas Fraser, Aberdeen, president-elect of the association.

Medical Center in Jerusalem Dedicated.—The Rothschild-Hadassah-University Hospital and Medical School on Mount Scopus overlooking Jerusalem was dedicated May 9 with a meeting of the committees that have worked toward its establishment, members of the medical center staff and of the Associated Hadassah Medical Organization of Palestine. Miss Henrietta Szold, Jerusalem, honorary president of Hadassah, the women's Zionist organization of America; Dr. Judah L. Magnes, president of Hebrew University, and Mr. Salman Schocken, president of the university's executive committee, were the principal speakers. Units of the center are: the Rothschild-Hadassah-Hebrew University Hospital, the Henrietta Szold School of Nursing and the Nathan Ratnoff Medical School for Postgraduate Teaching and Research. Funds for its construction, which cost $1,250,000, were raised by Hadassah and the American Jewish Physicians' Committee, the latter headed by Dr. Nathan O. Ratnoff, New York. Dr. Julius Jarcho, New York, collected a medical library for the new center and Dr. Jacob J. Golub, New York, was honorary consultant on the architecture. The hospital will have facilities for 300 beds and may later be expanded. The school of nursing will accommodate eighty pupils and ten graduate nurses for a three year course. The medical school has 100 rooms, a large animal house and facilities for research in cancer, experimental pathology, parasitology, bacteriology, chemistry and endocrinology.

Foreign Letters

LONDON

(From Our Regular Correspondent)

June 3, 1939.

Injuries to Both Semilunar Cartilages

Injury to one semilunar cartilage of the knee joint, usually the internal, is well known, but injuries to both cartilages do not seem to have been described. Yet at the Section of Orthopaedics of the Royal Society of Medicine Mr. Constantine Lambrinudi reported eight cases which he had seen in the last two years. In six of the cases there was pain on the inner side. In four the disability was attributed to quadriceps insufficiency and treated as such for a long time. The pain on the inner side is interesting because the statement is made that pain due to a lesion of the external cartilage is often referred to the inner side. Mr. Lambrinudi suggested that in these cases it was not a true referred pain but that there was a lesion of the internal cartilage as well. The practical importance of this suggestion is that on account of pain on the inner side the surgeon may be tempted to explore the inner cartilage first and, finding something definitely abnormal, may be lulled into the belief that this is the cause of the trouble and think it not necessary to explore the outer side of the joint. This happened in four of the cases. The following is an example:

About three years ago a girl twisted her knee playing tennis. She had immediately a large effusion and great pain, most marked on the inner side. There was some lateral wobble and an orthopedic surgeon diagnosed strain of the internal lateral ligament and put the leg in plaster. After this the knee never felt strong and she had attacks of "the whole knee going out" with pain on the inner side. About a year later another orthopedic surgeon operated and appeared to have removed the anterior half of the internal cartilage. But her symptoms persisted and when she was examined by Mr. Lambrinudi there was marked ligamentous laxity and muscular atony, and when she was anesthetized he felt a definite click in the external cartilage. He explored the posterior half of the internal cartilage and found it intact except for a small tag. It came away as one piece and there was no doubt that the anterior half had previously been removed. He then explored the outer side and found that the external cartilage, though not displaced, was extremely movable. The posterior part came forward with the slightest pull and he was able to remove the cartilage complete. Since the operation the knee only twice has let her down and for this there was a definite cause, such as slipping over a rug. She could hike, dance and run comfortably but did not feel secure when side stepping. Before the operation attacks were much more frequent and occurred unaccountably. So in spite of some ligamentous laxity the removal of both cartilages improved her symptoms.

Mr. Lambrinudi drew the following conclusions from his cases: 1. Dual lesions of the semilunar cartilages occur more frequently than is realized and ought to be suspected in all cases where the pain, associated with an injury to the external cartilage, is alleged to be referred to the inner side. 2. Dislocation of the external cartilage is more likely to be associated with strain of the crucial ligaments than is the case with internal cartilages. 3. The diagnosis of quadriceps insufficiency should be abolished, as it gives rise to confusion of thought. 4. Alarming symptoms associated with a moderate degree of ligamentous laxity are really due more to slipping in and out of the external cartilage than to laxity itself, and in these circumstances excision of this cartilage is a sound procedure.

New Neurologic Research Institute

A new well equipped building for investigation into the causes of mental defects and abnormalities and borderline conditions has been opened at Bristol by the secretary of state for the dominions in the presence of a distinguished company of neurologists. It is called the Burden Neurological Research Institute because it has been made possible by the munificence of Mrs. R. G. Burden, warden of Stoke Park Colony for Mental Deficients, within the grounds of which the new building has been erected. Professor Golla is to be the director, and the staff will consist of Mr. Grey Walter (electrophysiology), Dr. Max Reiss (a Czech endocrinologist), Mr. N. S. L. MacLeod and Mr. A. Tingey (biochemist) and Mr. Wylie McKissock (visiting surgeon).

Among those present was Dr. P. O'Brien, representative in Paris of the Rockefeller Foundation, which has made a generous contribution to the neurosurgical department. The Medical Research Council has also made a grant in support of some of the research work. The director, Professor Golla, said that only those who had realized how the multiplicity of competing claims hampered the work of the large hospital clinics would fully appreciate the advantages of such a research institute, which was equipped in the very best way for the investigation not only of the functions of the nervous system but of the body as a whole. In the preoccupation with the brain there was some tendency to forget the bodily stratum of mental disease. It was intended to take a few carefully selected cases and investigate them by every means available to electrophysiologic and endocrinologic research. An immediate occupation would be the study of the varied group of pathologic states of the brain which were responsible for epileptic seizures. What the neurologist called epilepsy was the least understood of the common nervous diseases. It was hardly an exaggeration to say that our knowledge had received little addition since the time of Galen until certain researches, carried out chiefly in America and this country, had given hints for further investigation. There were now good grounds for hoping that certain electrophysical methods would enable us to understand and combat this distressing disease.

The International Organization Against Trachoma

The International Organization Against Trachoma was created in 1929 by the thirteenth Ophthalmic Congress to study trachoma. The president is Dr. MacCallan of London. Annual meetings are to be held and will be open to all practitioners. The annual subscription will be $6, which includes the quarterly journal *Revue internationale du trachome.* Without the journal the annual subscription is $3. The journal has been published in Paris since 1924 by the Ligue contre le trachome. It contains articles in various languages and in 1936 was recognized as the mouthpiece of the organization. The annual subscriptions of members are not sufficient for the ordinary expenses of the organization, and donations are invited from ophthalmologic societies, governments and private persons.

Edward Wing Twining

The death at the early age of 52 of Edward Wing Twining is a great loss to British radiology. He qualified in 1913 and after some experience in general practice and holding various hospital appointments was given charge of the electrotherapeutic department at a military hospital during the war. In collaboration with a surgeon, H. S. Souttar, he published his investigations on the treatment of injuries of the peripheral nerves. He then took up radiology and on obtaining his diploma in that subject was offered by the examiner, A. E. Barclay,

the post of junior radiologic officer to the Manchester Royal Infirmary. When Barclay, his chief, left Manchester for Cambridge, Twining succeeded him. He made great improvements in radiologic technic, devising more accurate and more economical methods. The original apparatus for tomography was almost prohibitively expensive, but he invented a simple attachment for enabling it to be carried out on any x-ray couch. His work on the radiography of the chest was monumental. This he embodied in the great new British work "A Textbook of X-Ray Diagnosis," which he edited in collaboration with Shanks and Kerley, of which two volumes have been published and a third is in preparation. Three fifths of the 500 pages of volume I are occupied with his work on the radiography of the chest, which is illustrated by 245 of his own roentgenograms and anatomic drawings. He was lecturer on radiology at Manchester University and had been chosen president of the Section of Radiology of the Royal Society of Medicine and of the Faculty of Radiologists.

PARIS

(From Our Regular Correspondent)

June 6, 1939.

Two Important Meetings

Two important meetings were held during the Whitsuntide vacations; one at Vittel on diuresis, the other at Spa, representing the international session on cardiology. The water exhibit was an added attraction to the Spa meeting. At Vittel, with Professor Rathery in the chair, some twenty papers were read. Mauriac and Saric of Bordeaux emphasized the morphologic factor in the tissular retention of water. Brull of Liége discussed the role of the endocrine system in the mechanism of diuresis. Govaerts and Lequime reviewed the output of the heart and its variations after the absorption of large quantities of water. These variations are not necessarily parallel to diuresis, since the latter is more considerable after the ingestion of a saline solution than after the ingestion of pure water. In order to account for the increase of the output and of the heart and that of diuresis, one must have recourse to the hypothesis of a certain degree of hydremia and of the dilatation of the viscera and the kidneys. Cornil and Malméjac of Marseilles, seeking to elucidate the part taken by the nervous system in diuresis or in the secretion of the kidney, arrived at the conclusion that one cannot assert the existence of secretory renal nerves but that the vasomotor variations of the kidney are a powerful factor in the quantity and quality of urinary discharge. From the therapeutic point of view the most noteworthy papers were those of Tiffeneau and of Mercier and Balansard, the one devoted to chemical, the other to vegetable, diuretics. Polonovsky described the work of the kidney in maintaining the basal equilibrium. Flessinger presented a study of the stages in the passage of water during digestion, the metabolism of which is provided largely by extrarenal channels. The subject of Patel, Thevenot and Fontaine was the application of surgery to the treatment of oliguria. These papers and the discussions that accompanied them furnished a picture of what the French school thinks regarding diuresis.

The first of the Belgian sessions was devoted to the limitations of the electrocardiogram. In spite of the technical criticisms of Routier and the doubts raised by Van Dooren of the results offered by thoracic derivation, the speakers showed a tendency to show the justification of electrocardiography and of the methods derived from it rather than to restrict the field of its application. The next day, clinical proofs permitting the measurement of output of the heart were studied. The speakers endeavored to indicate how the movement of the heart can be measured at the bedside. The program for the third day dealt with coronary circulation and the myocardium. This gave Régnier of Brussels and Boucomont of Royat an opportunity to discuss the consequences of the disorders of coronary circulation on the auricles and on the muscular tissue of the heart and the diagnostic means available to detect and analyze them.

Improvisation of a Floating Hospital

Dr. Armand, surgeon of the hospitals of Marseilles, described before the Academy of Medicine the manner in which a French packet, the *Marshal Lyautey*, served to hospitalize and treat a certain number of wounded Spaniards routed by the advance of Franco. This boat had a capacity of 10,500 tons and normally plied between France and Algeria. More than 1,500 wounded were received, almost all at the same time. There were as many as 1,200 persons aboard with only 1,080 beds. Five operating rooms were rapidly organized and five shifts of surgeons set to work. An x-ray division was added. Only about forty qualified nurses could be recruited. No physician nor any member of the Spanish military health service had accompanied the Spaniards to France. The volunteer services were much in demand in transporting, receiving, delousing, washing and clothing those who arrived and in securing for them some degree of comfort and health during their sojourn. Fortunately, though there was a shortage of personnel, the materials needed were superabundant. On the average, six major operations were performed daily and about a hundred dressings. Only eleven deaths occurred, none of which were caused by tetanus or postoperative infection. Nine of the deaths concerned men whose condition of health had been serious on their arrival. The vessel was disinfected daily with cresyl washings or by fumigation; bedding and clothes were steamed. A passenger boat quickly transformed into a hospital can clearly render good service. However, the narrowness of the passages and staircases was a source of annoyance, and sailors' berths did not lend themselves well to certain surgical needs.

Health Passbooks

The department of public health has just issued an order authorizing health passbooks (carnets de santé). These are to be complete, individual and confidential. Thus the results of the different tests which the French citizen takes throughout his life will be coordinated. These embrace all the phases of his life: nursling, schoolboy, applicant for civil or military positions, sports interests, army service, marriage, retirement, not to mention the examinations which he takes when be becomes ill, especially if he must undergo treatments of long duration. The practice of health examinations is spreading. In sickness it is absolutely necessary for the different physicians consulted to have before them the health record of their patient. It might be dangerous in certain cases not to be able to prove vaccination or serum treatment when the patient could have been given them. To secure all possible secrecy, the passbook will be anonymous and will bear only a number as well as the indication of the organization or physicians who first delivered it or who have added remarks.

Obituaries

Professor Nicolas, who succeeded Poirier as professor of anatomy in the Faculty of Medicine of Paris and who was the collaborator and subsequently the editor of his Treatise on Anatomy, died recently. Among other losses in the medical family are to be mentioned the death of Marcel Pinard, author of numerous studies on syphilis; that of Dr. Legrain, physician at the Seine asylum, who spent a long life in an ardent crusade against alcoholism, and of Prof. Marcel Labbé, whose researches on nutritional diseases and notably on diabetes were authoritative. He was a member of the Academy of Medicine.

BERLIN

(From Our Regular Correspondent)

May 31, 1939.

Medical and Social Care of Pernicious Anemia

Professor Dennig, director of the Moabit Hospital, one of the largest of Berlin's institutions for the sick and at the same time the fourth university medical clinic, recently discussed the question of pernicious anemia before the medical society of Berlin. The speaker stated that diagnosis in actual practice is either not made at all or is made too late, because many afflicted persons have no symptoms for a long time and then all of a sudden their hemoglobin content is found to be reduced below 30 per cent. The most frequent mistaken diagnoses are sepsis, inoperable carcinoma and infirmity of old age. According to the speaker's experiences, 50 per cent of those dismissed from the hospital as improved patients subsequently suffered a relapse and had to be rehospitalized. Relapses occur chiefly from six months to two years after release from the hospital. The chief causes of relapse are (1) change of physician combined with change in diagnosis, (2) insufficient instruction of the patient regarding further treatment after leaving the hospital, (3) termination of treatment by the physician and (4) economic difficulties; either the patients can no longer pay for the expensive liver preparations or the sick funds have completed their legally required contributions, while organizations of public welfare that usually begin to function in such cases decline to assume the high costs. The real reason for the frequency of relapses lies in the lack of adequate organization for treating patients continuously, as needed. In actual practice it is sufficient to determine the hemoglobin content and to prescribe liver preparations accordingly. He recommends especially injection of liver preparations. It is not only cheaper than oral administration but establishes a closer bond between patient and physician, necessary for regular control. Treatment with raw liver is expensive and unpleasant and is only occasionally employed as an additional measure. The number of injections depends on the condition of the patient and varies between once a day and once a month according to the condition of the patient and the effect of the preparation employed. Spinal disturbances cannot be improved although they do not grow worse, if the patient reports regularly for treatment.

Dr. Siebeck, professor of internal medicine in discussion, called attention to the fact that treatment of pernicious anemia should occur as early as possible, because myeloid symptoms are improvable in the initial stages. Prof. Werner Schultz, hematologist, emphasized the fact that many patients with this disorder attain old age with good treatment but develop gastric carcinomas. Professor Kalk, director of a section of a large Berlin hospital, recommended subsequent treatment with oral doses of gastric mucous membrane preparations. By means of the gastroscope often polypi can be recognized in the stomach of these patients. These polypi frequently become malignant. Pernicious anemia as well as these carcinomas arise secondarily to gastritis. If the patient recovers from pernicious anemia, there is great danger of further carcinomatous evolution.

Effect of Roentgen Rays on Tumor Cells

Hildegard Vollmar, in an address before the medical association of Tübingen, reported the effect of the roentgen rays on normal cells (embryonic tissues of chickens) and on tumor cells (mice carcinomas) recorded in a continuous film exposure. The peculiar value of the films consisted in the fact that not only could the final effect of radiation be shown but a continuous observation of the processes of irradiation was made possible. The experiment was so organized that, throughout, the same group of cells remained focused and exposed to the film. The x-ray tube set up at the side and focused on the cells allowed the rays to fall directly on them. Films were taken before, during and, at definite intervals of time, after the irradiation. The dose consisted of 16 roentgens a minute at intervals of thirty, sixty, 120 and 180 minutes. In the case of normal cells, no radical impairment could be observed after an irradiation of thirty and sixty minutes; however, irradiation of 120 minutes (1,920 roentgens) revealed that within this time injury to the cells had set in, which continued and finally led to the death of the cells. The progress of this injury bore the following characteristics: (1) the motility of the cells gradually decreased; (2) the protoplasmic border surrounding the cells like a veil began to fold and shrink, the cell processes took on a spearlike form, the cell itself grew round, and (3) a small dose could destroy the cellular wall and allow the protoplasm to break through. The greater sensitiveness of the tumor cells to radiation was evidenced by the fact that irradiation of thirty minutes (480 roentgens) and of sixty minutes (960 roentgens) produced injury to the cells during irradiation. There was no recovery but the various phases of the injury terminated in the death of the cell. In irradiations of 120 and 180 minutes (1,920 and 2,880 roentgens) the cell died during the exposure. The same processes could be observed at first in tumor cells as in normal cells. A characteristic additional element was an intensive vacuolation under certain circumstances. Of special interest in the irradiation of the tumor cells was the great difference of their susceptibility to radiation. This could be clearly observed in the films. Often the individual cells of the same culture showed the greatest difference of susceptibility to radiation, so that some cells were not affected by even large doses or only to a much less degree. This observation can at once be interpreted according to the statistical theory of cell injury; that is, in the sense that a certain number of cells can escape the effects of radiation by sheer number. On the other hand, it may be a question of cells that escape injury by roentgen rays in their very nature; in other words, there may be a type of cell that is more or less ray resistant.

Electrocardiographic Peculiarities in the Course of Hyperthyroidism

Dr. Spang and Dr. Korth pointed out before the medical society of Berlin that a true picture of what takes place in the heart can be gained from observing the electrocardiographic changes during the course of hyperthyroidism. The condition of the heart can be read from the form of the terminal fluctuations. Most frequently after an operation, but also in cases of thyrotoxicosis, a change is found in the terminal fluctuation revealing a certain similarity to the "coronary T." This form of fluctuation is regarded as a specific indication of thyrotoxicosis and as the expression of a special reaction to the thyroid toxins which cannot be determined by other clinical methods of investigations. On the administration of digitalis a dissociation of symptoms becomes visible in the electrocardiogram: a slight effect on frequency and transition time though accompanied by a considerable change in terminal fluctuation. On viewing the electrocardiogram from right to left, one often discovers a typical change. Simultaneously with this change when the condition of thyrotoxicosis improves, e. g. after an operation, definite characteristic changes take place in the P wave and the roentgenogram. These changes in the form of the electrocardiogram and the roentgenogram attest a special power of the circulation peculiar to hyperthyroidism, an increase of resistance in the pulmonary circulation.

Death of Dr. Wagner, Medical Leader of the Reich

Dr. Wagner was 51 years old when he died. According to the official report he succumbed to an incurable malady; however, according to the German news bureau he died of a "treacherous disease which he had contracted in giving his services to the national socialistic movement." His position had been wholly insignificant until he joined the new political

movement. He assisted in founding the German society of physicians on the national socialistic basis and became its leader in 1932. In 1933 he was appointed reichsleader of the German physicians. In this capacity he had to deal authoritatively with all matters pertaining to physicians and in part also with problems that essentially concern research. He was a firm believer in national socialism and applied the deductions of this political theory to the general welfare. (Reports of these have appeared regularly in these columns.) Professor Reiter, president of the governmental bureau of health and himself a Nazi, speaks of him in an obituary as of "Gerhard Wagner, whom we national socialistic physicians called 'our father.'" He was given a state burial, attended by Hitler and a large retinue, with all the honors of the army and the political party.

ITALY

(From Our Regular Correspondent)

June 3, 1939.

International Radiomedical Department

The international radiomedical department situated in Rome recently ended its third year. Prof. Guido Guida, director, presented a report to the ministerial offices in which the work carried on in the course of 1938 for Italian and foreign sailors is given in detail. The department answered ninety-eight radio calls from ships. There were eighty-two clinical, seven surgical and nine accident cases. The physicians advised by radio that the patients be brought ashore immediately for operation. The orders were obeyed. The radio calls came from the Mediterranean in forty instances, from the Atlantic or Indian oceans in forty-eight and either from the Black Sea or from the North Sea in ten. By comparing the work done by the Roman department with that of other similar European centers it will be observed that England served, during 1938, twenty-nine radiomedical calls, France thirty, Holland thirty-seven, Finland fourteen, Ireland six and Belgium two. The most serious cases were those of epidemic influenza, bronchopneumonia, sunstroke, renal and hepatic colic pains, fractures and accidents injuring the eyes. Some grave cases developed on board steamers a few days away from port. In these instances they were advised by radio to approach any other steamer which was equipped with medical service. The department printed a small book of instructions and clinical records for distribution among the captains of ships.

Society Reunion

The Società Medica Coloniale met recently at Tripoli. Dr. Azzarello spoke on a meningo-encephalitic syndrome which he has observed in children who have had roentgen depilation in treatment of ringworm of the scalp. The symptoms last for about a month. The patients recover. The differential diagnosis is made with meningo-encephalitis and serous meningitis. A lively discussion followed the reading of Dr. Azzarello's article. Professor Bettòlo said that the speaker's report is of great interest as the symptoms indicate that the roentgen treatment may have caused acute or else a transient inflammatory reaction of the ventricular ependyma and of the choroidal plexus in persons with a predisposing constitution. He pointed out the advisability of following the behavior of the cerebrospinal fluid in the course of the disease. Professor Superbi believes that the meningeal reaction may show idiosyncrasy to roentgen irradiations. Professor Ciotola made reference by analogy to the inconveniences of the application of a helmet for permanent hair waving.

Personals

Prof. Giacinto Viola, head of the medical clinic of the University of Bologna, resigned recently on account of poor health. Professor Viola has been the pioneer in studies on individual constitution which have made an epoch in the history of the development of medicine. His method has found important applications especially to biology and clinical medicine. Professor Viola has been the head of the medical clinics in various Italian universities. In the clinic of Bologna he organized a well equipped department for the application of this method of constitution to diagnostic research and also in relation to the application of the method to the treatment of diseases. He established a center for the specialization of physicians in physical therapy.

BUDAPEST

(From Our Regular Correspondent)

April 23, 1939.

The Congress of Hungarian Sports Physicians

The Society of Home Defense Surgeons recently arranged the first Congress of Hungarian Sports Physicians, the aim of which was, first, to display the kind of work carried on by the home defense medical staff and to show how it contributed to the development of sports in home defense. The congress wanted also to document the great work which the ministry of home defense achieved by teaching home defense surgeons sports physician training and by purchasing equipment necessary to the sports physician. The congress was attended by representatives of the Hungarian universities and the Hungarian sports physician institutes and delegates of foreign universities and sports associations. The chief theme was the task of the sports physician with regard to sports and to the Olympic games of 1940.

The Budapest Center for Blood Donors

Dr. Kubányi, lecturer at the University of Budapest, issued a report on the function of the blood donor center at St. Rochus Hospital. Donors were required from October 1935, when the center was established, to December 1935 in twenty-eight cases, in 1936 in eighty-two cases, in 1937 in 172 cases and to Aug. 1, 1938, in 291 cases. A total of 158 donors are enrolled. During the three years a donor has not exceeded one hour in reporting after receiving the call. He is obliged to hand over his card, on which there is a column for noting whether he is punctual. Hospitals pay 30 pengös (about $6) for each donation to regular ward patients, while for private paying patients the fee is higher. Donation of blood is not required from any donor oftener than eight times a year. In his report Dr. Kubányi suggests that, besides the establishing of blood groups and the Oehlecker biologic tests, the agglutination titer be fixed, lest an excessive difference exist between the titer of donor and patient.

Marriages

THOMAS DAVID DUBLIN, New York, to Miss Christina Macdonald Carlyle of West Roxbury, Mass., June 3.

ROBERT PEERS BUCKLEY, Duluth, Minn., to Miss Kate Wisdom Holland of Jackson, Tenn., May 16.

ERIC TWACHTMAN, Greenwich, Conn., to Miss Doris Walbridge Pinkham of New Canaan, June 3.

FRANCIS ASHLEY FAUGHT to Miss Elizabeth Hughes Mortimer, both of Philadelphia, May 15.

ELIZABETH B. WARD, Newark, N. J., to Mr. Frederick Lunn Trowbridge of Chatham, May 20.

JAMES DONALD SMITH, Tuscaloosa, Ala., to Miss Gwendolyn Friegel in Montgomery in May.

ALLEN P. GURGANIOUS, Palatka, Fla., to Elizabeth Clark Hoster of New York, June 2.

ABRAM BIRD DANIEL, Statesboro, Ga., to Miss Dorothy Goolsby of Eastman, May 23.

L. FORREST SWANK to DR. LUCRETIA W. RICHISON, both of Elkhart, Ind., May 14.

WILLIAM HENRY KAUFMAN to Miss Beth Pearse, both of Durham, N. C., May 27.

Deaths

Edward Harris Goodman, Dorset, Vt.; University of Pennsylvania Department of Medicine, Philadelphia, 1902; at various times assistant instructor, instructor and associate in medicine at his alma mater; formerly associate professor of medicine at the Medico-Chirurgical College, Graduate School of Medicine, University of Pennsylvania; served in various capacities on the staffs of the University of Pennsylvania Hospital, Phipps Institute for Tuberculosis, Philadelphia General Hospital and Presbyterian Hospital, Philadelphia, Children's Sea Shore House, Atlantic City, N. J., and the White Haven (Pa.) Sanatorium; secretary of the American committee of the International Congress in Budapest in 1909; served during the World War; author of "Blood Pressure in Medicine and Surgery" published in 1914; aged 59; died in March in a hospital at Philadelphia.

Frank Stiles Owen, Santa Barbara, Calif.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1885; member of the American Academy of Ophthalmology and Oto-Laryngology; fellow of the American College of Surgeons; professor emeritus of laryngology and rhinology at the University of Nebraska College of Medicine; past president of the Omaha-Douglas County Medical Society and the Nebraska State Medical Association; formerly oculist and aurist to the Immanuel Deaconess Institute and St. Catherine's Hospital and rhinologist and laryngologist to the University Hospital, Omaha; aged 82; died, March 23, of carcinoma of the prostate, arteriosclerosis and uremia.

Joseph Edgar Stewart ✠ St. Louis; University of Pennsylvania School of Medicine, Philadelphia, 1914; instructor in clinical orthopedic surgery, Washington University School of Medicine; member of the American Orthopedic Association, Clinical Orthopedic Society and the American Academy of Orthopedic Surgeons; served during the World War; at various times and capacities on the staffs of the Barnes Hospital, St. Louis Children's Hospital, St. Louis Maternity Hospital and St. Louis City Hospital; aged 48; died, March 5, of coronary thrombosis.

Gilbert Molleson Elliott, Brunswick, Maine; College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1889; member of the Maine Medical Association; veteran of the Spanish-American and World wars; for many years member of the school committee, and member of the board of health; formerly on the staff of the Brunswick Hospital; aged 71; died, March 31, in a hospital at Brattleboro, Vt.

Thomas Lowe ✠ Pipestone, Minn.; Hahnemann Medical College and Hospital, Chicago, 1885; past president of the Minnesota State Board of Medical Examiners; formerly mayor of Pipestone; past president of the Southwestern Minnesota Medical Society; member of the state legislature; on the staff of the Ashton Memorial Hospital; aged 80; died, March 12, in the West Side General Hospital, St. Paul, of pneumonia.

Charles Simpson Woodall ✠ Brandon, Vt.; Harvard University Medical School, Boston, 1924; member of the American Psychiatric Association and the New England Society of Psychiatry; superintendent of the Brandon State School for the Feebleminded; at one time assistant superintendent of the Walter E. Fernald State School, Waverly, Mass.; served during the World War; aged 45; died, March 26, of angina pectoris.

Albert Louis Voltz ✠ Richmond Hill, N. Y.; Long Island College Hospital, Brooklyn, 1908; member of the Radiological Society of North America; past president of the Medical Society of Queens County; on the staffs of the Jamaica (N. Y.) Hospital, Lutheran Hospital, Brooklyn, and the Creedmoor State Hospital, Queens Village; aged 55; died, March 27, in the New York Hospital of heart disease.

George Tucker Smith ✠ Medical Director, Rear Admiral, U. S. Navy, retired, Charlottesville, Va.; University of Virginia Department of Medicine, Charlottesville, 1888; entered the navy in 1889 and retired in 1929 on his own application after forty years' service; fellow of the American College of Surgeons; aged 72; died, March 18, in the University of Virginia Hospital, of lobar pneumonia.

Conrad Georg ✠ Ann Arbor, Mich.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1899; member of the American Association for Thoracic Surgery; served during the World War; at one time second assistant in surgery and demonstrator at his alma mater; aged 64; died, April 15, of an incised wound of the throat and wrist, self inflicted with a scalpel.

Buenaventura H. Portuondo ✠ Belleville, Ill.; College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1889; past president and secretary of St. Clair County Medical Society; formerly chairman of the board of health of Belleville; on the staff of St. Elizabeth's Hospital; aged 73; died, March 9, in St. Anthony's Hospital, St. Louis, of pneumonia.

Eli Moores Watts ✠ Texarkana, Texas; Tulane University of Louisiana School of Medicine, New Orleans, 1909; past president and secretary of the Bowie County Medical Society; on the staff of the Texarkana Hospital; for many years member of the board of education; formerly health officer; aged 54; died, March 28, of heart disease.

William H. Zwickey ✠ Superior, Wis.; Wisconsin College of Physicians and Surgeons, Milwaukee, 1906; also a pharmacist; past president of the Douglas County Medical Society; physician in charge of the Douglas County Asylum Home and Sanatorium, Itasca; aged 69; died, March 17, in St. Francis Hospital of chronic pulmonary tuberculosis.

Henry Hurlburt Tomlin ✠ Wildwood, N. J.; University of Pennsylvania Department of Medicine, Philadelphia, 1905; president of the Cape May County Medical Society; served during the World War; school physician; aged 62; died, March 10, of coronary occlusion while aboard ship during a South American vacation cruise.

Thomas Albert Starkey, Montreal, Que., Canada; L.R.C.P., London, M.R.C.S., England, 1894; University of London Faculty of Medicine, London, England, 1895; formerly Strathcona professor of hygiene at McGill University Faculty of Medicine; served during the World War; aged 67; died in March at Claremont, Jamaica, B. W. I.

Lex Glin McCutchen ✠ St. Louis; St. Louis University School of Medicine, 1924; senior instructor in radiology at his alma mater; member of the Radiological Society of North America; aged 44; on the staff of the Firmin Desloge Hospital, where he died, March 31, of coronary occlusion and arteriosclerosis.

Frank Embery ✠ Philadelphia; Medico-Chirurgical College of Philadelphia, 1892; member of the American Academy of Ophthalmology and Oto-Laryngology; fellow of the American College of Surgeons; on the staff of the Frankford Hospital; aged 72; died, March 17, at his summer home in Southampton.

Charles Schultz, New York; McGill University Faculty of Medicine, Montreal, Que., Canada, 1923; member of the Medical Society of the State of New York; psychiatrist of the city department of hospitals; aged 40; died, March 24, in Detroit of self-inflicted stab wounds and an overdose of a narcotic, self administered.

Glenwood Medcalfe De Lisser, Tupper Lake, N. Y.; Washington University School of Medicine, St. Louis, 1897; member of the Medical Society of the State of New York; on the staffs of the Mercy General Hospital and the American Legion Mountain Camp; aged 65; died, March 7, of bronchopneumonia.

Byron William Shaw, Waunakee, Wis.; Cleveland College of Physicians and Surgeons, Medical Department of Ohio Wesleyan University, Cleveland, 1898; member of the State Medical Society of Wisconsin; aged 67; died, March 15, in St. Mary's Hospital, Madison, of coronary thrombosis.

John Henry Reed, Logansport, Ind.; University of Maryland School of Medicine, Baltimore, 1885; member of the Indiana State Medical Association; aged 78; on the staffs of the Cass County Hospital and St. Joseph's Hospital, where he died, March 2, of pneumonia.

Robert Raymond Sellers ✠ Newark, N. J.; Medical College of the State of South Carolina, Charleston, 1914; served during the World War; on the staff of the Hospital of St. Barnabas and for Women and Children; aged 52; died, March 13, of coronary occlusion.

Helene Piutti, Freiburg, Germany; Albert-Ludwigs-Universität Medizinische Fakultät, Freiburg, Baden, Germany, 1922; formerly on the staff of the State Hospital for Mental Diseases, Howard, R. I.; aged 45; died, March 4, in an automobile accident.

Lettie Allen Ward, Camden, N. J.; Woman's Medical College of Pennsylvania, Philadelphia, 1898; member of the Medical Society of New Jersey; aged 80; died, March 18, in the Cooper Hospital of bronchopneumonia and arteriosclerotic heart disease.

Frank E. O'Neil Prescott, Kan.; University Medical College of Kansas City, Mo., 1895; member of the Kansas Medical Society; past president of the Linn County Medical Society; aged 69; died, March 20, in a hospital at Fort Scott of lobar pneumonia.

Harold Phillips Shepard, Newark, N. J.; Hahnemann Medical College and Hospital of Philadelphia, 1938; aged 27; intern at the Hospital of St. Barnabas and for Women and Children, where he died, March 25, of acute lymphatic leukemia.

Thomas Simpson Kennedy, Fort Lauderdale, Fla.; University of the South Medical Department, Sewanee, Tenn., 1901; veteran of the Spanish-American War; aged 80; died, March 28, of carcinoma of the right side of the neck.

Russell Clinton McNeill ✠ Kenton, Ohio; Starling Medical College, Columbus, 1896; past president of the Hardin County Medical Society; on the staff of the McKitrick Hospital; aged 69; died, March 9, of coronary occlusion.

James Thomas Smith, Westfield, N. C.; North Carolina Medical College, Davidson, 1898; formerly a minister; aged 61; died, March 14, in the Martin Memorial Hospital, Mount Airy, of aplastic anemia and ischiorectal abscess.

Claude Benjamin Mills ✠ Cross Hill, S. C.; Medical College of the State of South Carolina, Charleston, 1913; served during the World War; aged 50; died, March 1, in the Veterans Administration Facility, Columbia.

John Alsop Pilcher Jr. ✠ Roanoke, Va.; University of Virginia Department of Medicine, Charlottesville, 1929; on the staff of the Gill Memorial Eye, Ear and Throat Hospital; aged 34; died, March 7, of a gunshot wound.

Anna M. Hill Shinnick, Zanesville, Ohio; Woman's Medical College of Cincinnati, 1894; aged 75; died, March 12, in the Mount Carmel Hospital, Columbus, of arteriosclerosis, diabetes mellitus and cerebral hemorrhage.

Roy Hamilton Peck, Springfield, Mass.; Kentucky School of Medicine, Louisville, 1903; member of the Massachusetts Medical Society and the American Urological Association; aged 58; died, March 29, of carcinoma.

Alonzo L. Lawson, Elk Valley, Tenn.; Hospital College of Medicine, Louisville, Ky., 1896; member of the Tennessee State Medical Association; member of the county board of education; aged 66; died, March 10.

Frank Stephen Skinner ✠ Marion, Iowa; Rush Medical College, Chicago, 1897; past president of the Linn County Medical Society; aged 66; died, March 7, of chronic myocarditis and auricular fibrillation.

Edwin D. Merritt, Detroit; Detroit College of Medicine, 1899; member of the Michigan State Medical Society; on the auxiliary staff of the Grace Hospital; aged 68; died, March 23, of coronary thrombosis.

Wilfred H. Schuyler, Boise, Idaho; College of Physicians and Surgeons of Chicago, 1883; member of the Idaho State Medical Association; aged 80; died, March 10, in the Veterans Administration Facility.

Charles V. Steward, Bolivar, Mo.; Missouri Medical College, St. Louis, 1886; member of the Missouri State Medical Association; aged 81; died, March 11, in the Pinal County Hospital, Florence, Ariz.

Charles Albert Weaver ✠ Manchester, N. H.; University of Vermont College of Medicine, Burlington, 1881; director, venereal disease control, state board of health; aged 83; died, March 5.

Louis Wesley Soland, Denver; Denver and Gross College of Medicine, 1910; served during the World War; aged 54; died, March 16, in St. Luke's Hospital of an overdose of a narcotic.

Harry Creighton Peffer, Orleans, Ind.; Indiana University School of Medicine, Indianapolis, 1933; member of the Indiana State Medical Association; aged 33; died, March 6, of gunshot wounds.

Arthur Edwin Osmond, Cincinnati; Medical College of Ohio, Cincinnati, 1904; served during the World War; aged 61; died, March 10, of a posterior lateral sclerosis of the spine.

Frank Rudolph Silver, Harwich Port, Mass.; Harvard University Medical School, Boston, 1903; aged 67; died, March 18, in the Cape Cod Hospital, Hyannis, of aneurysm of the aorta.

George Wellington Frasier, Bear Valley, Calif.; University of Minnesota College of Medicine and Surgery, Minneapolis, 1905; aged 62; died, March 27, of chronic myocarditis.

Elbert George Payne, Spokane, Wash.; Michigan College of Medicine and Surgery, Detroit, 1905; aged 75; died, March 9, in the Sacred Heart Hospital of cerebral hemorrhage.

Paul Gageby, Barberton, Ohio; Northwestern University Medical School, Chicago, 1927; fellow of the American College of Surgeons; aged 38; died, April 15, of tumor of the pons.

Edwin William Bathurst ✠ Etna, Calif.; Medical College of the Pacific, San Francisco, 1877; aged 84; died, March 8, of cardiovascular renal disease and hypostatic pneumonia.

Doran Therman Rue, Mattoon, Ill.; University of Illinois College of Medicine, Chicago, 1932; aged 32; was found dead, March 31, of an overdose of a drug, self administered.

Frederick F. Quilliams, Cleveland; Cleveland Medical College, 1897; aged 68; on the staff of the Huron Road Hospital, where he died, March 9, of diabetes mellitus.

Henry C. Peckham, Freeport, Mich. (licensed in Michigan in 1900); Civil War veteran; aged 93; died, March 12, of hypostatic pneumonia following an attack of influenza.

Jacob Swigert Coleman ✠ Frankfort, Ky.; Hospital College of Medicine, Louisville, 1876; aged 83; on the staff of the King's Daughters' Hospital, where he died, March 26.

Charles Francis Kueny, Beverly Hills, Calif.; State University of Iowa College of Medicine, Iowa City, 1887; aged 77; died, March 21, of carcinoma of the stomach.

John Albert Penner, Detroit; University of Toronto Faculty of Medicine, Toronto, Ont., Canada, 1931; aged 42; died suddenly, March 14, of coronary thrombosis.

Fletcher Eugene Lee, Columbus, Miss.; University of Tennessee Medical Department, Nashville, 1904; aged 65; died, March 20, of acute yellow atrophy of the liver.

Frank James Neifer, South Bend, Ind.; Eclectic Medical Institute, Cincinnati, 1884; aged 79; died, March 11, in the Epworth Hospital of abdominal carcinomatosis.

Lesley Edwin Wallace, Thebes, Ill.; University of Louisville (Ky.) School of Medicine, 1922; aged 42; died, March 20, of an overdose of a hypnotic, self administered.

Egerton Ferguson Card, San Francisco; Cooper Medical College, San Francisco, 1885; aged 85; died, March 1, of coronary artery disease and pulmonary infarction.

Charles Harney George, Willowbrook, Calif.; Jefferson Medical College of Philadelphia, 1908; aged 72; died, March 22, of cerebral hemorrhage and arteriosclerosis.

Wallace Peter MacCallum, Belmont, Mass.; Jefferson Medical College of Philadelphia, 1904; aged 60; died, March 9, in East Boston of coronary heart disease.

Rolland Wilton Halladay, Toronto, Ont., Canada; Queen's University Faculty of Medicine, Kingston, 1905; served during the World War; aged 57; died, March 22.

Laura C. Brickley Knapp, Palms, Calif.; Pulte Medical College, Cincinnati, 1885; aged 83; died, March 1, of hypertension and arteriosclerotic heart disease.

William Edward Philes, Washington, D. C.; National University Medical Department, Washington, 1901; aged 73; died, March 19, of heart disease.

Elmer Hezekiah Sothoron, Washington, D. C.; Bellevue Hospital Medical College, New York, 1890; aged 70; died, March 11, of chronic myocarditis.

Devillo P. Simons, Udall, Kan.; College of Physicians and Surgeons, Keokuk, Iowa, 1888; aged 79; died, March 25, of malignancy of the prostate.

William Bond Snipes, Aubrey, Ark.; Vanderbilt University School of Medicine, Nashville, Tenn., 1888; aged 79; died in March of arteriosclerosis.

Donald McLennan, Plattsville, Ont., Canada; McGill University Faculty of Medicine, Montreal, Que., Canada, 1888; aged 76; died, March 26.

James Berry Rickman, Rutherford, Tenn.; Vanderbilt University School of Medicine, Nashville, 1892; aged 76; died, March 7, of pneumonia.

William Painter, University Park, Iowa; Rush Medical College, Chicago, 1881; aged 82; died, March 30, in Dubuque of cerebral hemorrhage.

Edward Andrew Hanna, Los Angeles; Chicago Medical College, 1886; aged 74; died, March 26, of cerebral hemorrhage.

Val F. Seel, Walnut Ridge, Ark. (licensed in Arkansas in 1903); aged 81; died, March 22, of bronchopneumonia.

Plesant A. Ogle, Crawford, Tenn. (licensed in Tennessee in 1907); aged 67; died, March 15, of heart disease.

Bureau of Investigation

MISBRANDED "PATENT MEDICINES"

Abstracts of Notices of Judgment Issued by the Food and Drug Administration of the United States Department of Agriculture

[EDITORIAL NOTE.—The abstracts that follow are given in the briefest possible form: (1) the name of the product; (2) the name of the manufacturer, shipper or consigner; (3) the composition; (4) the type of nostrum; (5) the reason for the charge of misbranding, and (6) the date of issuance of the Notice of Judgment—which is considerably later than the date of the seizure of the product and somewhat later than the conclusion of the case by the Food and Drug Administration.]

Bewino Beef Wine and Iron Tonic and Builder.—Lucky Heart Laboratories, Inc., Memphis. Composition: Essentially a small amount of iron and ammonium citrate, protein, sugar, alcohol and water. Fraudulently represented as a "tonic," blood purifier, etc.—[*N. J. 28311; September 1938.*]

Butler's Cod Liver Oil Ointment.—Anedemin Chemical Co., Chattanooga. Composition: Essentially petrolatum and fish oil. Fraudulently represented as a remedy for burns, wounds, ulcers, etc.—[*N. J. 28353; September 1938.*]

Erbru Health Herbs and Iron.—Lucky Heart Laboratories, Inc., Memphis. Composition: Essentially epsom salt, a small amount of an iron compound, and extracts of plant drugs including a laxative, with salicylates, sugar and water. Fraudulently represented as a remedy for kidney, stomach, blood and nerve disorders.—[*N. J. 28311; September 1938.*]

Fairey's Famous Long Life Liquid.—Fairey Wholesale Drug Co., Orangeburg, S. C. Composition: A water-glycerin solution of plant extractives, including emodin-bearing drugs and a small amount of sodium benzoate. For indigestion, bad breath, headache, kidney, bladder and blood disorders, etc. Fraudulent therapeutic claims.—[*N. J. 28329; September 1938.*]

Formula 281.—Isabella Laboratories, Chicago. Composition: Tablets containing dinitrocresol and phenolphthalein; samples examined contained from 0.32 grain to 0.46 grain of the former, and 0.25 grain to 0.29 grain of the latter, per tablet. Fraudulently represented as reducing weight without endangering the health, when used as directed.—[*N. J. 28339; September 1938.*]

Four Star One Night Healing Salve.—Leone Perfumers Keystone Laboratories, Memphis. Composition: Essentially menthol, eucalyptol, wintergreen and camphor, in petrolatum. Fraudulently represented as a remedy for pneumonia, influenza, all skin infections, etc.—[*N. J. 28342; September 1938.*]

Gall-Flo.—Gall-Flo Laboratories, Inc., Cleveland. Composition: Essentially water, alcohol, plant extractives, and an unidentified alkaloid. Fraudulently represented as a remedy for gallbladder and certain stomach disorders, antacid irritability, etc.—[*N. J. 28319; September 1938.*]

Gold Medal Cold Capsules, Alpha Cold Capsules, and Gray's Cold Capsules.—Although these bore different firm names (respectively, S. Pfeiffer Mfg. Co., Virginia Chemical Co. and Gray Pharmacal Co., all of St. Louis), the three nostrums were believed to be one and the same thing, and a specimen of each product was found to contain 1.79 grains of acetanilid, whereas each package claimed that the capsules contained 1½ grains of this substance, and hence the labeling was false and misleading.—[*N. J. 28340; September 1938.*]

Horsford's Acid Phosphate.—Rumford Chemical Works, Providence. Composition: Essentially water, phosphoric acid, and the acid phosphates of calcium, magnesium, sodium, potassium and iron, with 500 parts per million of fluorine. Adulterated in containing an added poisonous or deleterious ingredient, fluorine, and misbranded because falsely represented as a remedy for physical exhaustion, headaches, stomach disorders, etc.—[*N. J. 28346; September 1938.*]

Lawrence Caustic Balsam.—Lawrence-Williams Co., Cleveland. Composition: Chiefly a saponified oil, a terpene oil, and cantharides. Fraudulently represented to relieve pains, open or raw flesh, and strengthen the muscles.—[*N. J. 28323; September 1938.*]

Lee's Prescription for Hay Fever and Asthma.—Erie Laboratories, Cleveland. Composition: Chiefly acetylsalicylic acid, phenacetin and a small amount of an unnamed alkaloid. Fraudulent therapeutic claims.—[*N. J. 28368; September 1938.*]

Lucky Heart Wonder Skin Ointment and Brightener.—Lucky Heart Laboratories, Inc., Memphis. Composition: A small amount of red mercuric oxide (2.8 per cent), incorporated in a petrolatum base. For removing skin blemishes, such as eczema, pimples, ringworm, tetter, sallowness, etc. Fraudulent therapeutic claims.—[*N. J. 28311; September 1938.*]

Minto-San Mint Formaldehyde Spray.—Huntington Laboratories of Colorado, Inc., Denver. Composition: Essentially formaldehyde, soap, oil of spearmint, water and green coloring. Fraudulently represented as a remedy for bacteriological disturbances.—[*N. J. 28328; September 1938.*]

Midland Hospital Germolyptus.—Midland Chemical Laboratories, Inc., Dubuque, Iowa. Composition not given. Misbranded because the alcohol content was not stated on the label and because the product was falsely represented to be a germicide, disinfectant and antiseptic, when used as directed.—[*N. J. 28330; September 1938.*]

Organic Sea Food.—Organic Sea Products Corp., San Francisco. Composition: Essentially coarsely ground seaweed, with a very small amount of agar. Fraudulently represented to give vitality and eliminate poisons, cure deficiency diseases and conditions such as rheumatism, asthma, goiter, anemia, catarrh, etc., and prevent insanity, baldness and wrinkles.—[*N. J. 28314; September 1938.*]

Parker's (Dr.) Tablets.—Dr. Parker Medicine Co., Chicago. Composition: Extracts of plant drugs, including nux vomica and resinous material, with a small amount of phosphides. For sluggish kidneys, torpid liver, nervous debility, insomnia, impotency, etc. Fraudulent therapeutic claims.—[*N. J. 28350; September 1938.*]

Pinolator Treatment.—Pinolator Co., Minneapolis. Composition: A liquid containing essentially small proportions of thymol, benzoic acid and volatile oils including pine-needle and peppermint oils and camphor, acetone and a green dye. Fraudulently represented as a remedy for sinusitis, asthma, pneumonia, tonsillitis, etc.—[*N. J. 28338; September 1938.*]

Pneumo Oil.—Pneumo Oil Co., Detroit. Composition: Essentially kerosene, oil of peppermint and a small amount of camphor. Misbranded because of claim, "Alcohol 10 per cent," whereas no alcohol was found; fraudulently represented as a relief in pneumonia, tonsillitis, rheumatism, influenza, etc.—[*N. J. 28322; September 1938.*]

Protex.—Tex Products Co., Wheeling, W. Va. Composition: Essentially a small amount of a chlorine-liberating product in an effervescent base. Fraudulently represented as a remedy for vaginal inflammation or discharge, burning urine, periodic headaches, lack of sexual desire, etc.—[*N. J. 28363; September 1938.*]

Puritan Brand General Tonic.—Clyde Collins Chemical Co., Memphis. Composition: Essentially epsom salt, small amounts of sodium citrate, extracts of plant drugs, saccharin, salicylic acid, an iron compound and water. For kidney, bladder, stomach and sexual ailments. Fraudulent therapeutic claims.—[*N. J. 28321; September 1938.*]

Puritan Brand Liniment.—Clyde Collins Chemical Co., Memphis. Composition: Essentially light petroleum oil containing small amounts of eucalyptol and wintergreen, colored with red dye. Fraudulent therapeutic claims.—[*N. J. 28321; September 1938.*]

Puritan Brand Treatment Tablets.—Clyde Collins Chemical Co., Memphis. Composition: Iron oxide, small amounts of zinc phosphide and strychnine, with milk sugar, talc and a gum. For sexual debility. Fraudulent therapeutic claims.—[*N. J. 28321; September 1938.*]

V-T Preparation.—V-T Laboratories, Inc., and W. D. Taylor & Co., Bessemer, Ala. Composition: Essentially plant drugs including a laxative, with small quantities of potassium iodide and sodium salicylate, plus alcohol, sugar and water. Fraudulently represented to prevent or cure beriberi and pellagra, to cure stomach bloating, restore appetite, etc.—[*N. J. 28344; September 1938.*]

Vapo Nose and Throat Drops.—Lucky Heart Laboratories, Inc., Memphis. Composition: Essentially small proportions of ephedrine, eucalyptol and cinnamic aldehyde, in a mineral oil base. Fraudulent therapeutic claims.—[*N. J. 28311; September 1938.*]

Vapo Overnight Salve.—Lucky Heart Laboratories, Inc., Memphis. Composition: Approximately 10 per cent of volatile oils including menthol, eucalyptol and wintergreen, in a petrolatum base. For coughs, sore throats, tonsillitis, asthma, neuralgia, backache, rheumatism, "piles," etc. Fraudulent therapeutic claims.—[*N. J. 28311; September 1938.*]

San-I-Gene Douche Powder.—Lucky Heart Laboratories, Inc., Memphis. Composition: Essentially boric acid (90 per cent), and small amounts of paraformaldehyde, potassium alum and wintergreen, perfumed with peppermint. Not antiseptic when used as directed. Fraudulent therapeutic claims.—[*N. J. 28311; September 1938.*]

Tiger Head Antiseptic Nerve and Bone Liniment.—Lucky Heart Laboratories, Inc., Memphis. Composition: Essentially extracts of plant drugs including red pepper, a small amount of oil of sassafras, and alcohol (about 58 per cent by volume), with chloroform (about 23 minims per fluidounce), and water. Fraudulently represented to cure diseases or disorders of the nerves and bones, relieve pains and cramps, cuts, burns, neuralgia, etc.—[*N. J. 28311; September 1938.*]

Ward's (Dr. J. R. W.) Formulas.—Standardized Remedies, Inc., New York. Composition: "Formula No. 448" (for hardening of arteries), plant material including blessed thistle, and probably licorice; "No. 444" (for dropsy), coarsely ground plant material including camomile flowers, cotton-root bark, and probably dog grass, senna and podophyllum; "No. 447" (for high blood pressure), plant material including probably camomile, podophyllum and kamala; "No. 434" (for diabetes), plant material including camomile flowers, lovage root and probably cotton-root bark, dog grass, and podophyllum; "No. 459" (for weakness of the heart), plant material including podophyllum root and starch, and other plant tissues not recognized. Fraudulent therapeutic claims.—[*N. J. 28320; September 1938.*]

Correspondence

FUNGOUS INFECTIONS TREATED BY IONTOPHORESIS OF COPPER

To the Editor:—The communication of Dr. George Lewis, New York (THE JOURNAL, May 6, p. 1851), is of interest because of the direction from which Dr. Lewis approaches the question. Dr. Lewis is a trained and competent mycologist. From that point of view he criticizes the article on "Fungous Infections of the Hands and Feet Treated by Iontophoresis of Copper" by Haggard, Greenberg and myself.

We have deliberately approached the problem from the point of view of the average dermatologist and the general practitioner. Dr. Lewis possibly makes exact mycologic diagnoses in all his cases. The average dermatologist does not do this. He does not because, to quote from Dr. Lewis's own writing, "laboratory methods for the detection and identification of fungi pathogenic to man are time consuming and sometimes difficult to carry out, and the results are frequently inconclusive" (*Arch. Dermat. & Syph.* **38**:713 [Nov.] 1938). Therefore I feel that we were justified in basing our diagnoses on the same criteria that are generally used in making a diagnosis of ringworm of the feet and hands.

The comparison to pneumonia is, in my opinion, not pertinent. In pneumonia a careful bacteriologic diagnosis is important since the therapeutic methods are dictated by the invading organism. While it must be admitted that there is a wide variation in response to treatment of the superficial fungous diseases according to species of infecting micro-organism, we have not yet, despite the valiant efforts of the mycologists, reached the point where we can say that one fungus is vulnerable to one form of medication and another to a different form.

Although he does not so state directly, Dr. Lewis implies that ringworm of the hands and feet is easily controlled with the exception of those cases caused by Trichophyton purpureum. If this is true, infection with that micro-organism must be common. It has been my experience that one of the most difficult problems with which dermatologists have to cope is the control of fungous infections of the hands and feet; and I have no reason to believe that my experience is unique. In the article quoted, Dr. Lewis himself states that "cure of most fungous diseases is rare."

Dr. Lewis suggests that the use of the trichophytin reaction would have been of assistance. In this he is doubtless quite correct. However, he must admit that, if the specificity of this reaction had been definitely established beforehand, he himself would not have carried out the long series of experiments reported in his paper as mentioned. Admitting that he and his co-workers have established this test as simple and specific, it must be remembered that the results of this work were published subsequent to the time when our experiments were carried out and our paper was submitted for publication.

Dr. Lewis asks one definite question and makes, by implication, one accusation. Both require answers. The observations were reported as a preliminary report because the clinical results were so impressive that it seemed worth while to allow other workers to use this method. Perhaps Dr. Lewis himself, with the great amount of clinical material at his command, can give this method a thorough trial. As for the implication that we have misquoted Dr. Downing and his collaborators, we must enter a plea of not guilty. Dr. Downing quotes the finding by other workers of pathogenic fungi on a small percentage of apparently normal skins and comments on the fact that although the percentage is small, nevertheless his own results agree with those of the other workers. We did not state that pathogenic fungi are found on normal skins with any regularity but only that they may be found.

Dr. Lewis possibly feels that he is traveling the high road of laboratory controlled investigations and that we are traveling the low road of clinical observation, but there is no question that we are all striving to reach the same destination; that is, the finding of a method by which we can successfully and completely relieve the symptoms caused by infection of the hands and feet by fungi. From the patient's point of view, relief obtained is not measured in terms of mycology. He judges results by freedom from symptoms—clinical results.

We make no claim to having discovered anything new. We have simply used a chemical which has been used before with the aid of a physical technic which has also been used before. By persisting in the use of these, we believe that we have with our technic accomplished a fair percentage of clinical cures.

MAURICE J. STRAUSS, M.D., New Haven, Conn.

ANGINA PECTORIS WITH DIAPHRAGMATIC FLUTTER

To the Editor:—Readers may still be interested to hear that the patient with symptoms of angina pectoris whose diaphragmatic flutter has attracted much attention has put in his appearance on the West Coast.

He was brought by ambulance to the Collis P. and Howard Huntington Memorial Hospital, Pasadena, Calif., April 1, exhibiting his well known and oft repeated symptoms of severe pain in the chest and down the left arm. His pulse was 84 and the blood pressure 130 systolic, 75 diastolic. Examination of the chest revealed normal heart tones but a peculiar swishing, oscillation of about 300 per minute. He gave his name as Frank Crowley, his age as 65, and his occupation as a deep sea diver. He feigned some reluctance to taking morphine, and as soon as it had been given became very verbose as to the work he had done, ranging from such minor diving assignments as work on the Holland tube and San Francisco bridges to really heroic work such as the time when he, single handed, was responsible for the raising of two United States submarines, for which work he claims to have been given a congressional medal. He cited the article of Dr. W. B. Porter in THE JOURNAL, March 21, 1936, page 992. He seemed greatly pleased at the suggestion of his case being presented at a staff meeting two days later. During that time he was very cooperative and cleverly did not request morphine except by subtle means. Nothing abnormal was found electrocardiographically and diaphragmatic flutter and paralysis of the left diaphragm were seen fluoroscopically. Laboratory tests revealed nothing except a carbon dioxide content of 84 volumes per cent. Interest in the case was heightened by the article by Whitehead, Burnett and Lagen in THE JOURNAL, April 1, which reached our hands on the exact day of the staff meeting. The patient became angered when one of the doctors recognized him at the meeting and he was morose and sullen from that time on. Because the social workers were investigating his case it was thought advisable to transfer him to the Los Angeles General Hospital. The disposal of his case is not known to me.

OWEN A. KEARNS, M.D., Pasadena, Calif.
Intern, Huntington Memorial Hospital.

TREATMENT OF EDEMA

To the Editor:—Concerning Dr. Milhorat's discussion (Treatment of Edema, THE JOURNAL, March 4, p. 837), I would call attention to a therapeutic trick which can be used when extravasation outside the vein occurs when mersalyl (salyrgan) is injected intravenously. If one promptly injects the contents of one ampule of sodium cacodylate (three fourths grain [0.05 Gm.] to the cubic centimeter into and about the extravasation, no pain, necrosis or slough ensues. Salyrgan may also be combined with sodium cacodylate (an ampule of each) for giving painless intramuscular injections. I have given salyrgan and sodium cacodylate together subcutaneously with good results.

M. B. MARKS, M.D., Miami Beach, Fla.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

FREQUENCY OF URINATION

To the Editor:—**A married woman aged 36, the mother of two children, the youngest aged 9 years, has had frequency of urination for the past year following the death of her father. The frequency is present day and night and is worse when she is riding in an automobile and when she is worried. Physically she is underweight; she has had a thyroidectomy and an appendectomy. The heart and lungs are normal, both kidneys are palpable and there is a moderate retroversion of the uterus. Examination of the blood gives negative results; the urine shows no abnormalities. A pyelogram of the kidneys and ureter show both kidneys low and the ureter kinked and dilated. I have tried various urinary sedatives with no effect. On the advice of a specialist I got an abdominal support, but so far without any effect on the frequency. Could you suggest anything further? Is it possible for the proptosed kidneys to be the cause of the frequency? Could the retroverted uterus be the cause? How successful are operative procedures in curing this condition?**

M.D., Iowa.

ANSWER.—The first thing that this patient needs is a complete physical examination, to be followed by a complete urologic examination including a cystoscopic examination and careful bacteriologic studies of the urine to rule out the possibility of tuberculosis. This should include not only smears of catheterized specimens but cultures for tuberculosis as well as guinea pig inoculations. From the history, one might be inclined to attribute the frequency of urination to the death of her father. In other words, one might be able to explain the frequency on a nervous basis. On the other hand, patients who have nervous polyuria, or frequency on a nervous basis, have it in the daytime and, as a rule, do not have frequency at night. The fact that this patient is obliged to pass urine at night also makes one suspicious of organic disease, such as chronic nephritis, some form of diabetes or renal tuberculosis. It may be possible too that the frequency is due to the retroversion of the uterus. The simplest way to rule out this possibility would be to correct the malposition of the uterus by inserting a pessary, to see what happens. This is a relatively simple procedure and might answer the question. It is not at all likely that the ptosed kidneys are the cause of the frequency. Not knowing the cause of the frequency, one is not justified in answering the question as to how successful operative procedures are in curing this condition. One hardly knows what operation to recommend.

HYPERTENSION AND PULMONARY TUBERCULOSIS

To the Editor:—**How often are pulmonary tuberculosis and essential hypertension associated? References to the subject will be appreciated.**

M.D., North Carolina.

ANSWER.—Essential hypertension is less frequent in patients with pulmonary tuberculosis than it is in the usual population. Bunta (Blood Pressure Variations in Tuberculosis, *Am. Rev. Tuberc.* **29**:335 [March] 1934) found no hypertension in 504 cases of pulmonary tuberculosis, and Ayman (Arteriolar Essential Hypertension in Active Tuberculosis; Their Rare Association, *Am. J. M. Sc.* **188**:712 [Nov.] 1934) found one instance in 240 cases. In eighty postmortem examinations on patients dying with hypertension, however, Ayman reported that there were as many having old foci of tuberculosis as in patients not having hypertension. The lower incidence of tuberculosis, therefore, cannot be due to lack of infection.

In large sanatoriums the records show less than 0.5 per cent essential hypertension in admitted patients clinically and about 0.4 per cent in those coming to autopsy.

Hypertension in general is quite prevalent, as indicated by Alvarez (Blood Pressures in Fifteen Thousand University Freshmen, *Arch. Int. Med.* **32**:17 [July] 1923) in studies on university students. Forty-five per cent had systolic pressures over 130 and in 22 per cent they were over 140. It is not necessarily associated with older age groups but is prone to manifest itself early in life and be associated with sthenic types. As age advances, however, it tends to become exaggerated.

A follow-up study by the same author (Alvarez, W. C., and Stanley, L. L.: Blood Pressures in Six Thousand Prisoners and Four Hundred Prison Guards, *Arch. Int. Med.* **46**:17 [July] 1930) on prisoners and prison guards revealed that prisoners had pressures in general from 10 to 15 points lower than the guards, perhaps because of the difference in diet and strain. There was in general, however, the same tendency, but the percentage of abnormal pressures was less than half that found in students. Particularly was this true of the prisoners. According to Adson and his associates (Adson, A. W., and Allen, E. V.: Essential Hypertension: I. General Considerations, *Proc. Staff Meet., Mayo Clin.* **12**:1 [Jan. 6] 1937), 15 per cent of all adults and 23 per cent of persons all over 50 who die have hypertension. Brown (Essential Hypertension, *M. Clin. North America* **19**:517 [Sept.] 1935) states that about 98 per cent of hypertension is of the "essential" type and that it is prone to be familial. Somewhere in the immediate ancestors a person will be found having the tendency. It is truly a "high pressure" disease of the West, for orientals rarely have it. Another sidelight on the type of hypertension is afforded by Arthur Fishberg (Anatomic Findings in Essential Hypertension, *Arch. Int. Med.* **35**:650 [May] 1925), who states that he found 88 per cent of his cases of hypertension to be the "essential" variety on postmortem examination. The total number of cases of essential hypertension represents, therefore, well over 7 per cent, contrasted with hypertension in tuberculous patients, which occurs in well under 1 per cent. The disparity cannot all be attributed to the difference in age incidence of the two diseases.

The facts are that tuberculosis itself tends to lower the blood pressure and tends to develop more in the asthenic types, while hypertension has a tendency to appear more in the sthenic or athletic types. The assumption is that there is either something to cause tuberculosis to develop in the hypotensive patient or something to cause the hypertensive person to resist it, but the relationship of the state of nourishment, heredity and constitution, with the divergent courses of the respective diseases, is an unsolved problem and one that fills many pages of medical literature.

POSSIBLE ACNE NECROTICA MILIARIS OF SCALP

To the Editor:—**My daughter, aged 10, healthy, blonde, with a luxuriant growth of hair, within the past week or ten days has displayed minute petechial spots on her scalp. These are first noticeable over the occiput but now are present also on the vertex. There is no itching but the scalp feels tender while the hair is being combed. Vermin are totally absent. My wife is worrying because two acquaintances living at distant points relate the same syndrome, which resulted in almost complete loss of hair. There is no dermatologist within 300 miles of here. I am almost totally bald but would gladly sacrifice the remaining isolated hairs that I possess to keep my daughter from becoming bald.**

M.D., South Dakota.

ANSWER.—It is inferred from the wording of the query that no petechiae were found on other parts of the skin. A petechial eruption confined to the scalp is a rare phenomenon. If the doctor's observation is correct, the child should be thoroughly examined clinically and by all appropriate laboratory procedures to determine the cause of her purpura. Naegeli warns that general disease must always be suspected even though the petechial eruption is very limited in extent. Scurvy, the essential purpuras, thrombopenic, arthritic or abdominal, the blood dyscrasias, tonic, allergic and infectious causes must all be considered.

Is it possible that the doctor has mistaken small blood crusts on the scalp for petechiae? True purpuric lesions are usually smooth macules of from bright to dark red, from which it is impossible to express the blood and to blanch them by pressure with a glass lens or slide. Blood crusts occur frequently on the scalp, usually mixed with crusts that are not hemorrhagic. A disease characterized by tiny crusts of this nature was described by Sabouraud in 1928 and later in this country by J. E. Lane (Acne Necrotica Miliaris of the Scalp, *Arch. Dermat. & Syph.* **28**:10 [July] 1933) and by Hamilton Montgomery (Acne Necrotica Miliaris of the Scalp, *ibid.* **36**:40 [July] 1937). The lesions are from 1 to 3 mm. in diameter, occurring in crops of a dozen or less, more often on the occiput, but they may occur on any part of the scalp. They are often accompanied by itching and sometimes by dandruff or even outspoken seborrheic dermatitis, but loss of hair is seldom seen and then is probably due to the seborrheic condition. The crusts are preceded by minute vesicles and are said to leave tiny scars; but these are very superficial and do not cause alopecia. Sabouraud considered the staphylococcus the cause of the disease and this theory is borne out by the prompt effect of mercurial preparations. Ammoniated mercury ointment is the sovereign remedy; but though it causes prompt disappearance of the lesions it does not cure the disease, which recurs at varying intervals. Between attacks an alcoholic mercurial lotion may be used, such as mercury bichloride 0.2 Gm., spirit of formic acid 15 cc. and sufficient compound spirit of myrcia to make 90 cc. This can be applied with a medicine dropper once a day and rubbed into the scalp thoroughly with the fingers. During the use of mercurials it is well, on

theoretical grounds at least, to examine the child's urine once a week or once in two weeks. A possible sensitization to mercury may be guarded against by applying a patch test of 3 per cent white precipitate ointment to the back for forty-eight hours before use of the ointment therapeutically. The wisdom of this has recently been emphasized by J. H. Mitchell. If no irritation results from the patch test (do not confuse the irritation from adhesive plaster) in two days, it may be assumed that the skin is not sensitized to mercury.

If, in addition to the treatment of the vesicular eruption the patient is taught to brush her hair vigorously once a day, her parents need not worry about the loss of her hair within many years, barring, of course, other disease.

GLYCERIN, AURALGAN AND OTITIS MEDIA

To the Editor:—**Is there any corroboration of the claims made for the type of glycerin used in auralgan as given in the accompanying folder, which you may have seen? In our section many of the younger pediatricians are resorting to drops instead of incision in acute otitis media in infants in which there is otologically a definite indication for paracentesis. Discussion on the subject two years ago with Dr. Lyman Richards of Boston elicited the same information from him concerning the practice of some pediatricians in his section.**

M.D., New York.

ANSWER.—The Council on Pharmacy and Chemistry has made no examination of Auralgan, manufactured by the Doho Chemical Corporation, nor has any firm requested the Council to consider the preparation. According to advertising distributed in 1935, "Auralgan is an absolutely anhydrous solution of 5% Pyrazolon phenyldimethyl and other valuable anesthetics, not subject to the International Opium Convention, in pure glycerol of the highest specific gravity, manufactured by the Doho process exclusively." It will be noted that the promoter uses the little known chemical term "pyrazolon phenyldimethyl" instead of the more common name "antipyrine." It also fails to disclose the identity of the "other valuable anesthetics." Auralgan is marketed as a "conservative treatment in otitis media and aural pains." The preparation is claimed to possess certain physical properties not possessed by other solutions used in the treatment of diseases of the ear. The promoter, however, neglects to cite the evidence on which the special claims advanced in the advertising are based, and, until such evidence is furnished, a proper degree of skepticism would seem to be quite desirable. From the foregoing it appears that Auralgan is a preparation of semisecret composition marketed with extravagant and unsubstantiated claims.

There is no good basis for claiming that antipyrine is an efficient local anesthetic on skin surfaces. Furthermore, even if it were true that the glycerin in this preparation is of a higher quality and is more anhydrous than U. S. P. glycerin, this difference is probably of only theoretical value. Both of these glycerins will take up water quickly, and it is sufficient only to open the bottle or put the medication in the ear to have this take place. The more anhydrous the glycerin, the more apt would it be to do so.

POSSIBLE ADRENAL DEFICIENCY

To the Editor:—**A man aged 50 complains of insomnia and constipation that cannot be corrected with ordinary medication and diet. He is a good swimmer but at times gets attacks of weakness so that he cannot swim the full length of the pool. His temperature is subnormal, about 96 F., until noon. Thereafter it is normal until midnight. The electrocardiogram, urinalysis, metabolic tests and blood counts are normal. He has a constantly subnormal blood pressure, about 105 systolic, 75 diastolic. A diagnosis of adrenal gland deficiency has been made and whenever the patient takes adrenal cortex pills for several weeks the symptoms clear up. If this is the correct diagnosis, what are the prospects of having to discontinue the cortex pills in the future? The patient weighs 188 pounds (85 Kg.).**

M.D., California.

ANSWER.—The answer to this question depends on the accuracy of the diagnosis of adrenal deficiency. In the absence of more definite symptoms, it is one of the most difficult diagnoses to establish. The patient's blood pressure level is not necessarily subnormal for him. One would like to know whether he ever had a higher blood pressure when he was in good health. It might be possible to prove the presence of adrenal insufficiency by carrying out the serum and urine electrolyte study described by H. H. Cutler, M. H. Power and R. M. Wilder (THE JOURNAL, July 9, 1938, p. 117). However, it is not known how early in adrenal cortical deficiency this test becomes useful. The lungs and adrenal regions should be roentgenographed to rule out tuberculosis and calcification, respectively.

If the patient has mild adrenal deficiency, treatment with high salt intake, about 15 Gm. daily in addition to the ordinary seasoning, should control the symptoms. Adrenal cortex extract is usually necessary in the more severe cases or during exacerbation of symptoms as the result of respiratory infections, exposure to extreme heat or cold, surgical procedures and shock. The type of extract to use is a serious problem because of the uncertain potency of many commercial extracts. The glycerin extract prepared for oral administration has been shown to be effective in typical but low grade Addison's disease when given in two to four times the amount necessary by the parenteral route. A dosage corresponding to at least 5 Gm. of fresh adrenal cortex daily should be prescribed. If the pills contain 2 grains (0.13 Gm.) of cortex each, forty pills a day would be required as a minimum. During emergencies, parenteral administration of a potent extract is the only safe procedure for rapid effects. Whether the patient can get along without adrenal cortex extract will depend on his response to salt treatment alone, on the rate of progression of the underlying adrenal disease and on the occurrence of crises. If the diagnosis remains in doubt, substitution of placebo pills should be tried during a period when the patient is on a low salt intake and under close observation.

FUNCTIONAL NEUROSIS

To the Editor:—**A man aged 43, to all appearances in perfect health, complains of a numbness or dead feeling, as he expresses it, on the left side of the head, including the left side of the mouth, left arm and forearm but not including the shoulder, elbow or wrist joints, the left thigh but not the hip joint, the left leg and the knee joint as well as the ankle joint and the foot. When he puts his leg down he is not sure of its ability to support him and he has had several falls. At first he had pains in the side of his head and neck which felt as if they were "deep in the head," as he expresses it. He has not experienced these pains in the past two years. The trouble is of three years' duration and he has it only in February, March and sometimes April. If he can get out on a warm day and play golf, the numbness clears up. He leads a sedentary life in a hardware store and seldom takes a vacation. Physical examination showed nothing abnormal: blood pressure 130 systolic, 70 diastolic; reflexes normal; urinalysis normal. No foci of infection could be located. The blood showed 5,300,000 red cells, 6,000 white cells and 95 per cent hemoglobin, and the Wassermann reaction was negative at three different times. The family history is negative except that two cousins on his father's side have a psychosis. The patient himself shows some mental instability and will break down and cry for a trivial reason or for none at all. He is a good business man and has plenty of intelligence. Some years ago he had ulcers of the stomach but received treatment at John Hopkins Hospital and elsewhere and has recovered completely, so far as every examination in the past two years could determine. He has been to hospitals for his present trouble but has received no help. He was told that he was neurotic and the physicians he saw let it go at that. He does not seem neurotic to me or he would complain more frequently than he does. Any advice that you can give me about the cause and treatment or suggestions concerning further examination would be deeply appreciated.**

M.D., Virginia.

ANSWER.—From the information given, it is suspected that this is a case of a functional neurosis. However, it would be safe to have an examination by a neurologist if no such examination has been made within the past year. If organic disease can be excluded, it will be necessary to go into the patient's mental life and find out what problems and conflicts may have played a part. If it is possible to unravel the past and explain to him how he got to be the way he is, a cure might be obtained.

"EYE SHADOWS"

To the Editor:—**A man aged 28 gives a history of having had eye shadows since childhood. The shadows are noticeable, being quite dark particularly in the region of the inner canthus and sweeping down across the lower lid on each side. There is no puffiness and the skin, except for its color, is perfectly normal. The patient is well developed, well nourished and highly intelligent, smokes and drinks a little, does not dissipate and is the father of a healthy year old child. The family history is essentially negative, the father, mother and six brothers and sisters all living and well. Several brothers and sisters have the same tendency to eye shadow but not nearly so marked as has the patient in question. His complexion is good. I can find nothing in a complete physical examination which is abnormal or which might explain the trouble. The defect is only cosmetic but nevertheless real. He informs me that regular hours and long periods of rest improve the shadows so little as to be negligible. The eyes are normal. What, if anything, can be done about a condition like this?**

M.D., Minnesota.

ANSWER.—In all probability the "eye shadows" are merely the darkened areas of skin due to a superficial location of the veins at the margin of the orbit. This is an anatomic condition and not a pathologic one. When the patient is tired, the veins are apt to be somewhat fuller than they are otherwise and the shadows are somewhat darker. There is no satisfactory treatment.

EOSINOPHILIA

To the Editor:—A woman aged 46, 5 feet 6 inches (168 cm.) tall, weighing 198 pounds (89.8 Kg.), complains of cramplike abdominal pains of six weeks' duration. These trouble her usually in the evenings after dinner or soon after retiring at night. They are sharp and stablike, localized in the epigastrium beneath the left costal margin or in the lower part of the abdomen. In addition, she feels that the abdomen is distended and heavy. She notices dyspnea on rather mild exertion but she has gained a great deal of weight lately, 40 pounds (18 Kg.) in the last year. There has been some abnormal looseness of the bowels but no actual diarrhea. Previous to the onset of the symptoms mentioned, the patient had been in good health except for mild menopausal symptoms. The menopause occurred nine months ago. The past history was essentially negative. The patient has lived in San Francisco since birth. She had only the ordinary diseases of childhood. She had three normal pregnancies and deliveries. On examination she was not acutely ill. The excess weight is localized largely over the abdomen. The blood pressure was 140 systolic, 90 diastolic, the chest was clear, the heart was of normal size and the rhythm was regular. The abdomen was obese but soft, with little palpable gas. The liver, kidneys and spleen were not palpable. Pelvic examination revealed a marked prolapse of the uterus with rather severe cystocele and rectocele. The blood count revealed red cells 5 million, hemoglobin 95 per cent, white cells 25,000, neutrophils 17.3 per cent, nonfilaments 0.7 per cent, lymphocytes 12.3 per cent, monocytes 1.7 per cent, eosinophils 68 per cent. The examinations of the urine and of the stool were negative. Because of the marked eosinophilia with gastrointestinal symptoms, an attempt was made to detect a possible parasite. Repeated examinations of the stool in the past month have all been negative. Cutaneous tests for trichina were negative. X-ray examination of the abdomen revealed a slight enlargement of the spleen but not beneath the costal margin. The patient was given a bland 1,000 calory diet. Half grain (0.032 Gm.) doses of phenobarbital relieved the pains to some extent. In general she has been feeling somewhat better. On one occasion she endeavored to cure herself with a large dose of castor oil and was quite ill for a day with severe abdominal cramps, nausea and vomiting. The blood count has been repeated weekly and remains much the same as the first one. The great majority of the eosinophils are adults with two and three lobed nuclei. There are about 2 per cent of eosinophil metamyelocytes. Diligent search reveals an occasional eosinophil myelocyte. The eosinophils are quite typical and there is no question of confusion with neutrophils. Will you give me your opinion of this case and suggest what further procedures may be advisable to determine the diagnosis.

M.D., California.

ANSWER.—This question involves a differential diagnosis between the numerous causes of eosinophilia. Osgood lists forty-six such causes. These may be found in any good textbook on hematology and many of them are possibilities in this case.

It seems probable that the cause of such an eosinophilia as is described here will be found in trichinosis, arsenic poisoning, eosinophilic leukemia, periarteritis nodosa, Hodgkin's disease or lymphosarcoma. Of these, the first three are the most likely.

Trichinosis is suggested by the abdominal pain and the looseness of the bowel that appeared coincidentally with the eosinophilia. The eosinophilia in trichinosis is greatest when the parasites are burrowing through the intestinal wall. The negative reactions of the stool and skin do not positively preclude the diagnosis. Infestation frequently occurs without pain or soreness of the muscles.

Eosinophilic leukemia is rare but is a possibility. The presence of metamyelocytes and myelocytes and the slight splenomegaly lend weight to this possibility. Examination of the sternal marrow would be helpful in investigating this possibility. The total leukocyte count may be expected to increase in leukemia.

Arsenical poisoning should be ruled out by a careful investigation.

While trichinosis still remains the best possibility, it seems doubtful whether biopsy of muscle or examination of the spinal fluid is justified as a diagnostic procedure. After six weeks of illness with improvement the patient is destined to recover from trichinosis and it would seem more logical to rule out the other possibilities.

DIGITALIS AND SYPHILITIC HEART DISEASE

To the Editor:—What is the rationale for the use of digitalis in syphilitic heart disease? My patient has a pulse varying between 96 and 124. The rhythm is good but the quality is poor.

Virgil F. Neumann, M.D., Norwich, Conn.

ANSWER.—In addition to slowing the heart rate, digitalis probably exerts a direct action on the myocardium, improving the strength of contractions and thus perhaps eventually leading to that great desideratum in congestive failure diuresis. When failure is associated with auricular fibrillation the benefit from digitalis has always been considered greater than when the rhythm is normal, so much so that at times, and in certain quarters, it has been the fashion to reserve digitalis almost exclusively for patients with auricular fibrillation. The whole matter has recently been illuminated in a careful clinical study reported by Gavey and Parkinson (Gavey, C. J., and Parkinson, John: *Brit. Heart J.* **1**:27, 1939). They attempted to evaluate the benefit derived from digitalis in heart failure with normal rhythm in cases taken from various etiologic groups. This series was then compared with a group of patients with auricular fibrillation, also from various causes. Taking each group as a whole, they found, as others have, that those with fibrillation benefited more from digitalis than those with normal rhythm. However, if cases of fibrillation due to rheumatic heart disease were omitted from the fibrillation group, the remainder showed no more benefit than the group with normal rhythm; that is, a patient with auricular fibrillation from hypertension or thyrotoxicosis responded no better to digitalis than similar cases of congestive failure in the group presenting normal rhythm. The authors concluded: "The real difference in the response of heart failure to digitalis lies not between auricular fibrillation and normal rhythm but rather between rheumatic auricular fibrillation and all other kinds of heart failure irrespective of rhythm."

It is, of course, rare to have auricular fibrillation associated with syphilitic heart disease, and in this respect the patient described in the query conforms to the rule. At the present time the great bulk of opinion favors the use of digitalis in chronic myocardial insufficiency, whatever the underlying disease and whether or not the rhythm is regular. It is assumed that appropriate antisyphilitic treatment is also part of the program in this particular instance.

ROUTINE ADMINISTRATION OF TETANUS TOXOID

To the Editor:—I have been advised to use tetanus toxoid in a routine way in children or the combined diphtheria and tetanus toxoid. Does this meet with approval or is it still experimental?

Don S. Fraser, M.D., Panama City, Fla.

ANSWER.—The advice concerning the use of tetanus toxoid is believed good. About 1936 the administration of tetanus toxoid was made compulsory for all soldiers as well as for all animals in the army of France.

Ramon urges the routine administration of tetanus toxoid and diphtheria toxoid combined for all children. This method has been adopted in a number of places in France. The plan has progressed beyond the experimental stage.

EXTRAORDINARY ACAROPHOBIA

To the Editor:—A patient has an infection of the skin and hairy regions which has dragged along for the past year without the desired results from the treatment administered. The symptoms are as follows: There is a generalized migrating sensation much more pronounced over the scalp and other hairy regions. Expulsion of minute black specks occurs more or less continuously for a period of six hours every thirty-six hours. Occasionally (not with every expulsion) there is expelled adult parasitic life that has been identified as *(a)* Drosophila (fruit fly), *(b)* Catorama (small beetle), *(c)* Anthicidae (small beetle), *(d)* Lathridiidae (small), *(e)* dermestid larva Attagenus (small beetle), *(f)* isopod "sand flea" (small crustacean), *(g)* fly genus? ant genus? nits? This identification was made from material gathered from expulsions of the scalp over a period of several months. The hair on the surface becomes intensely blacker during the migratory phenomenon but quickly assumes its normal color. If it is extricated with a pair of thumb forceps the hair appears thicker and blacker and the bulb quite large and black. A stinging feeling is produced when the hair is making its way to the surface of the skin and tends to perforate. There are no other symptoms of any definite value, and no constitutional disturbance is produced. One condition that is of great annoyance to the patient is the migrating sensation from the scalp down over the forehead to the brow and eyelids. The hair is short (one-eighth inch in length) and appears to migrate just below the epidermis, making its way to the edge of the lids. In order to afford relief, it is extricated as soon as it makes its appearance. I shall be grateful if you could devise a good treatment for this condition and, if possible, tell me whether any serum or vaccine could be made to combat infection more specifically.

M.D., New Jersey.

ANSWER.—It is quite obvious that the diverse organisms from this patient's skin did not arrive there naturally. The conclusion is forced that the entire affair is feigned and fraudulent. In the usual case of phobia for parasites the patient sincerely believes himself to be infested with insects. He has a delusion. The diagnosis in such a case is acarophobia. The subject digs, scrapes or cuts away small bits of skin, which he presumes to be parasites. He will bring numbers of such specimens to the physician as evidence of infestation. There may have been actual itching present before the fancied infestation occurred. It is most difficult to convince these patients that there is no actual infestation. The aid of a psychiatrist is sometimes needed. In such a case as the present one the procedure is even more difficult. It is necessary to use the greatest tact and at the same time a firm approach. An attempt should be made to discover the patient's motive in feigning this peculiar process. The service of a specialist in nervous and mental diseases might be of benefit in solving this peculiar complex.

TREATMENT OF SYPHILIS AFTER ARSENICAL DERMATITIS

To the Editor:—A man aged 58 has been under treatment for early syphilis, a chancre being present when treatment was begun. He was given a course of ten treatments with neoarsphenamine at weekly intervals. At the end of this period of treatment an arsenical dermatitis appeared. This was treated with sodium thiosulfate and the dermatitis disappeared. He is now being given a course of bismuth injections. I should like to know whether it is wise to resort again to the arsenicals for treatment and if so whether or not any of the other arsenicals are considered less toxic and safer to use than neoarsphenamine.

M.D., California.

ANSWER.—A 58 year old patient who has demonstrated an intolerance for arsphenamine as evidenced by an arsenical dermatitis should not be subjected to further treatment of this type until at least from six to eight months has elapsed. In the meantime the bismuth therapy must be continued. If at the end of six months there is evidence that the bismuth has failed to control the disease, the use of small doses of mapharsen might be employed, with however extreme caution, at least a week or ten days between injections and close scrutiny for evidence of recurrence of the dermatitis. On the other hand, if the clinical course has been satisfactory and the serologic tests have become weakly positive or negative, it would be advisable to continue only with the bismuth and not attempt further arsenical therapy.

Many patients have been rid of their syphilis with less than ten injections of arsphenamine, and this patient, especially in view of his age, should be treated cautiously with bismuth compounds until a sufficient time has elapsed to determine the effect of this type of treatment rather than run the risk of producing a second arsenical dermatitis.

OKRA AND ARTICHOKES

To the Editor:—Please let me know something about okra and artichokes other than with regard to their protein and carbohydrate content. Do they have any ferment content or have they any peculiar value in stomach disorders? Are they contraindicated in a mild peptic ulcer syndrome? I have a patient who pulled a stomach tube out before a gastric analysis was completed and refuses to permit another attempt. The readings obtained were:

	Free Hydrochloric Acid	Total Acidity
Fasting	0	11
15 minutes	4	18
25 minutes	22	40

Stale bread and water constituted the test meal. Units are expressed as cubic centimeters of tenth normal sodium hydroxide. Would this be sufficient to be called hyperacidity, compatible with peptic ulcer? Are occasional one day attacks of mild diarrhea part of a peptic ulcer syndrome?

M.D., New York.

ANSWER.—Okra was of interest for a while because a vegetable mucin was being obtained from it. Artichokes are of interest mainly because of the peculiar types of sugar which they contain. There seems to be no knowledge of any particular ferment content. If there should be any, it would be destroyed in cooking. There should be no contraindications to the use of these foods in mild cases of ulcer except perhaps that artichokes contain a great deal of fiber.

The patient's acidity is well within the limits of normal. Any reading is compatible with the presence of a peptic ulcer. Diarrhea is not a symptom of peptic ulcer.

VITAMINS AND PYORRHEA

To the Editor:—Has vitamin C any effect in preventing, checking or curing pyorrhea of the gums? Are any of the vitamins particularly valuable in pyorrhea?

Matthew Karasek, M.D., Shidler, Okla.

ANSWER.—The most certain thing that is known about pyorrhea is that different cases demonstrate widely different pathologic processes. There is undoubtedly a type of pyorrhea related to scurvy if not caused by it. In this type vitamin C is necessary both in prevention and in cure. The relation of other vitamins, especially vitamin A, to supporting tissues of the teeth is not so clear but some relation has been reported by various investigators. There is also evidence that in some cases the condition is related to endocrine disturbances.

According to Boyle, Bessey and Wolbach (*Proc. Soc. Exper. Biol. & Med.* **36**:733 [June] 1937) "The essential characteristic of the diffuse alveolar atrophy type of pyorrhea, which is inability of periodontal tissues to withstand functional stress, has been reproduced in guinea pigs maintained on diets deficient in ascorbic acid. The histological details in bone and connective tissues of these scorbutic animals are identical with those found in human periodontal disease of this type."

There is a considerable amount in the literature with reference to experimental programs regarding vitamin deficiencies, some of which involve the pathology of the gingivae and supporting tissues and there is some evidence that vitamin D, calcium and phosphorus are involved in the maintainence of normal teeth and gums. The usefulness of any of these or of vitamin C in the treatment of pyorrhea is not, however, clearly established.

SYSTOLIC MURMUR AND HORN PLAYING

To the Editor:—A youth aged 12, normal except for a systolic apical murmur brought on by exercise, wishes to learn to play a French horn. Are there any contraindications for him to do so?

Louis L. Fiorito, M.D., Chicago.

ANSWER.—If the boy has a definite lesion with a certain degree of myocardial insufficiency, his vital capacity might be sufficiently reduced to make horn playing difficult or impossible. But the mere presence of a murmur, as in the case described, does not in itself imply disease of the heart. There is a well known connection between players of wind instruments and pulmonary emphysema in later life. Horn playing might therefore conceivably be said to affect the heart, although remotely. Any attempt to relate the case under consideration to such speculations must be dismissed as mere theorizing. There would seem to be no medical reason why the young man should not take up the French horn.

TRANSPLANTATION OF THE EYE AND CORNEA

To the Editor:—Has any progress been made in recent years in the transplantation of human eyes?

M.D., California.

ANSWER.—The transplantation of the entire eyeball is a fanciful dream which unfortunately can never come true. While it is perfectly possible in experimental animals to transplant the eyeball and have it live, there is no possibility of producing vision in such a transplant. The optic nerve is a part of the brain and as such does not regenerate when once dead. But transplantation of the cornea of the human eye is an accomplished fact, with adequate clinical evidence in support. However, this is applicable only in such cases in which vision is interfered with by scars of the cornea. Destruction of the remainder of the visual apparatus vitiates the value of such transplants. The man in the United States who has had great experience in corneal transplantation is Dr. Ramon Castroviejo of Columbia University of New York, who now has well over 200 such operations to his credit.

GASTROINTESTINAL THRUSH

To the Editor:—A patient aged 3½ months has suffered from thrush since birth. In addition to local symptoms there is refusal to eat, gas, constipation and difficulty in swallowing. None of these symptoms are controlled by the usual formula regulations. Stool culture shows Monilia albicans. X-ray films of the stomach show a six hour retention. Treatment has consisted of local application of 1 per cent gentian violet and exposure to a sunlamp. Could gentian violet or any other medication be given by mouth on the basis that there are localized lesions in the gastrointestinal tract as well as in the mouth? Any help that you can give me will be appreciated.

M.D., New York.

ANSWER.—Generalized thrush is highly resistant to treatment. If it is confined to the gastrointestinal tract, recovery will ensue, although the response to any form of treatment will be slow.

Gentian violet is one of the best remedies for gastrointestinal thrush and can be used both locally and orally. Skimmed acid milks or buttermilk mixtures are best used for the feeding with a minimum of carbohydrate added. Honey or a preparation of maltose and dextrin is the carbohydrate of choice. Cottage cheese can be given at 3½ months and is well tolerated. Heliotherapy or the sun lamp and much open air exposure and the use of cod liver oil or cod liver oil concentrates are valuable aids in the general treatment, as is also the use of additional vitamins C and B and a moderate amount of nicotinic acid.

VIRUS DISEASES NOT CONTAGIOUS DURING INCUBATION PERIOD

To the Editor:—Are those common infectious diseases of childhood generally thought to be caused by a virus contagious during incubation period? Does the answer also apply to whooping cough?

M.D., District of Columbia.

ANSWER.—It is generally believed that an infectious disease due to a virus is not contagious during the incubation period. Rabies and smallpox are examples that would uphold this view. Whooping cough is not a virus disease and is not regarded as being contagious during the period of incubation.

Medical Examinations and Licensure

COMING EXAMINATIONS

STATE AND TERRITORIAL BOARDS

Examinations of state and territorial boards were published in THE JOURNAL, June 24, page 2627.

NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS: Parts I and II. Medical centers having five or more candidates desiring to take the examination, Sept. 11-13. Ex. Sec., Mr. Everett S. Elwood, 225 S. 15th Street, Philadelphia.

SPECIAL BOARDS

AMERICAN BOARD OF ANESTHESIOLOGY: An Affiliate of the American Board of Surgery. *Written.* Various places throughout the United States, Sept. 9. Applications must be filed by July 11. *Oral.* Part II. Philadelphia, Oct. 14-15. Sec., Dr. Paul M. Wood, 745 Fifth Ave., New York.

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY: *Written.* Various large cities in the country, Oct. 9. *Applications must be received by the Secretary by Sept. 1. Oral.* Philadelphia, Nov. 3-4. Sec., Dr. C. Guy Lane, 416 Marlboro St., Boston.

AMERICAN BOARD OF INTERNAL MEDICINE: *Written.* Various sections of the United States, Oct. 16 and Feb. 19. Formal application must be received before Aug. 20 for the Oct. examination and on or before Jan. 1 for the Feb. examination. Sec., Dr. William S. Middleton, 1301 University Ave., Madison, Wis.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: *Written examination and review of case histories (Part I) for Group B candidates* will be held in various cities of the United States and Canada, Dec. 2. *Applications for admission to Group B, Part I, examinations must be on file not later than Oct. 4. General oral and pathological examinations (Part II) for all candidates (Groups A and B)* will be conducted in Atlantic City, N. J., June 6-8. *Applications for admission to Group A, Part II examinations must be* on file not later than March 15. Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh (6).

AMERICAN BOARD OF OPHTHALMOLOGY: *Written.* August 5 and April 6. Formal application must be received before July 1 for the August examination and before January 1 for the April examination. *Oral.* Chicago, Oct. 7 and New York, June 10. Sec., Dr. John Green, 6830 Waterman Ave., St. Louis.

AMERICAN BOARD OF ORTHOPAEDIC SURGERY: Boston, January. *Applications must be filed on or before Nov. 1.* Sec., Dr. Fremont A. Chandler, 6 N. Michigan Ave., Chicago.

AMERICAN BOARD OF OTOLARYNGOLOGY: Chicago, Oct. 6-7. Sec., Dr. W. P. Wherry, 1500 Medical Arts Bldg., Omaha.

AMERICAN BOARD OF PATHOLOGY: Memphis, Nov. 22-23. Sec., Dr. F. W. Hartman, Henry Ford Hospital, Detroit.

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY: New York, December. Sec., Dr. Walter Freeman, 1028 Connecticut Ave. N.W., Washington, D. C.

AMERICAN BOARD OF RADIOLOGY: Atlanta, Ga., Dec. 9-11. Sec., Dr. Byrl R. Kirklin, 102-110 Second Avenue S.W., Rochester, Minnesota.

AMERICAN BOARD OF SURGERY: *Part I (Written).* Simultaneously in various centers throughout the United States, Oct. 9. *Applications must be received by the Secretary not later than Aug. 15.* Sec., Dr. J. Stewart Rodman, 225 S. 15th St., Philadelphia.

Rhode Island April Examination

Dr. Robert M. Lord, secretary, Rhode Island State Board of Examiners in Medicine, reports the oral, written and practical examination held at Providence, April 6-7, 1939. The examination covered twenty subjects and included fifty questions. An average of 80 per cent was required to pass. One candidate was examined and passed. The following school was represented:

School	PASSED	Year Grad.	Per Cent
Georgetown University School of Medicine		(1937)	87

Tennessee March Examination

Dr. H. W. Qualls, secretary, Tennessee State Board of Medical Examiners, reports the written examination held at Memphis, March 22-23, 1939. The examination covered ten subjects and included 100 questions. An average of 75 per cent was required to pass. Twenty-five candidates were examined, all of whom passed. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
College of Medical Evangelists		(1938)	85.9
Univ. of Pennsylvania School of Medicine		(1936) 87.9, (1938)	89.7
University of Tennessee College of Medicine		(1938) (1939) 81.6, 83.5, 84, 84.8, 85, 85.5, 86.2, 86.3, 86.5, 86.6, 86.6, 86.8, 87.3, 87.4, 87.6, 88.3, 88.6, 88.8, 88.9, 91.2	85.6,
University of Toronto Faculty of Medicine		(1934)	90.4

Three physicians were licensed by endorsement from January 6 through January 31. The following schools were represented:

School	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
University of Louisville School of Medicine		(1936)	Kentucky
Johns Hopkins University School of Medicine		(1933)	N. B. M. Ex.
University of Toronto Faculty of Medicine		(1921)	Ohio

Arizona April Report

Dr. J. H. Patterson, secretary, Arizona State Board of Medical Examiners, reports the written examination held at Phoenix, April 11-12, 1939. The examination covered ten subjects and included 100 questions. An average of 75 per cent was required to pass. Five candidates were examined, four of whom passed and one failed. One physician was licensed by reciprocity. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
College of Medical Evangelists		(1938)	77.3
Chicago Medical School		(1938)	81.4
Creighton University School of Medicine		(1938)	77.1
University of Wisconsin Medical School		(1938)	77.4

School	FAILED	Year Grad.	Per Cent
Chicago Medical School		(1938)	69.2*

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Marquette University School of Medicine		(1929)	Wisconsin

* This applicant has received the M.B. degree and will receive the M.D. degree on completion of internship.

Colorado April Report

Dr. Harvey W. Snyder, secretary, Colorado State Board of Medical Examiners, reports the written examination held at Denver, April 5-7, 1939. The examination covered eight subjects and included 159 questions. An average of 75 per cent was required to pass. Six candidates were examined, all of whom passed. Two physicians were licensed by endorsement. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
School of Medicine of the Division of Biological Sciences		(1937)	80
Osteopaths *		76, 79, 80, 80, 82	

School	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
Johns Hopkins University School of Medicine		(1936)	Maryland
Harvard Medical School		(1935)	N. B. M. Ex.

* Licensed to practice medicine and surgery.

Hawaii April Examination

Dr. James A. Morgan, secretary, Board of Medical Examiners, Territory of Hawaii, reports the oral and written examination held at Honolulu, April 10-13, 1939. The examination covered ten subjects and included eighty questions. An average of 75 per cent was required to pass. Eight candidates were examined, all of whom passed. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
Georgetown University School of Medicine		(1938)	80.5
Emory Universtiy School of Medicine		(1937)	85.1
University of Louisville School of Medicine		(1932)	81.4
Tulane University of Louisiana School of Medicine		(1927)	76.1
Johns Hopkins University School of Medicine		(1935)	79.4
Detroit College of Medicine and Surgery		(1932)	77.7
University of Nebraska College of Medicine		(1935)	82.2
Medical College of Virginia		(1933)	87.2

Two physicians were licensed by endorsement on March 9 and March 31. The following schools were represented:

School	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
Stanford University School of Medicine		(1929)	N. B. M. Ex.
Jefferson Medical College of Philadelphia		(1937)	N. B. M. Ex.

Nevada May Examination

Dr. John E. Worden, secretary, Nevada State Board of Medical Examiners, reports the written examination held at Carson City, May 1-3, 1939. The examination covered twelve subjects and included ninety-six questions. An average of 75 per cent was required to pass. Two candidates were examined, both of whom passed. One physician was licensed by endorsement after an oral examination. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
University of Southern California School of Medicine		(1939)	87.7
Loyola University School of Medicine		(1937)	78

School	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
Washington University School of Medicine		(1924)	N. B. M. Ex.

Book Notices

Nutrition: The Newer Diagnostic Methods. Proceedings of the Round Table on Nutrition and Public Health. Sixteenth Annual Conference of the Milbank Memorial Fund March 29-31, 1938. Paper. Price, $1. Pp. 192, with illustrations. New York, 1938.

Physicians interested in the newer developments in methods of assessing the nutritional status of patients will find the present volume most useful, because it contains material described in no other single volume. The present little book contains the papers presented in the section on public health at the sixteenth annual conference of the Milbank Memorial Fund. A. Graeme Mitchell discusses the medical aspects of problems of nutrition. The late T. Wingate Todd summarizes his work on the use of roentgenology in assessing the nutritional state and in detecting certain deficiency diseases. There is an article on dark adaptation and the diagnosis of avitaminosis A by Selig Hecht, and there is another by Jacob B. Feldman on the use of the photometer in detecting latent avitaminosis A. Soma Weiss discusses the application of electrocardiography in the detection of avitaminosis B_1; S. Z. Levine and E. Marples report on color tests for vitamin B_1, and Tom Spies contributes a chapter on the relation of nicotinic acid to pellagra with particular reference to therapeutic studies and a diagnostic test. Chester J. Farmer and Arthur F. Abt have a chapter on the titration of plasma ascorbic acid as a test for latent avitaminosis C. G. M. Guest has described his work on hematologic methods and newer procedures for the detection of nutritional anemia. John B. Youmans discusses the diagnosis of nutritional edema, with particular reference to the determination of plasma proteins and consideration of their behavior. A feature of the book is the inclusion of comments from the round table discussions following the presentation of each paper. It is a far cry from the older methods of evaluating the nutritional status by physiologic examination to the present methods described in this book. Possibilities for future investigations are truly enormous, and the procedures described in this book will be important in obtaining the necessary data.

Trauma and Internal Disease: A Basis for Medical and Legal Evaluation of the Etiology, Pathology, Clinical Processes Following Injury. By Frank W. Spicer, A.B., M.D., F.A.C.P. Cloth. Price, $7. Pp. 593, with 43 illustrations. Philadelphia, Montreal & London: J. B. Lippincott Company, 1939.

This book seems to be merely a compilation of a multitude of reports which have appeared in connection with trauma and disease. The author acknowledges that he has depended almost entirely on the experience of others. Most of the material consists of case reports. Such highly controversial matters as trauma in relation to tuberculosis or heart disease are not convincingly presented. However, as the author shows, the fact that courts have allowed claims for damages because of supposed traumatic factors in pulmonary tuberculosis is important for physicians. The legal side is, however, inadequately presented. The bibliography is tremendous, but of the numerous reports about half are more than two decades old. Pathologic concepts have changed considerably during the postwar decades. The greatest fault is the failure to use the statistical approach to the subject. Too often there is "post hoc ergo propter hoc" reasoning. The book loses its appeal as a scientific text, which could be enhanced by citation of more legal decisions.

A Medical Survey of the Republic of Guatemala. By George Cheever Shattuck, Harvard School of Public Health, Boston, Mass. With the collaboration of Joseph C. Bequaert, Jack H. Sandground, Margaret M. Hilferty and Samuel Drury Clark. Paper. Price, $2.50. Pp. 253, with 8 illustrations. Washington, D. C.: Carnegie Institution of Washington, 1938.

The barrier of time and space between the United States and the tropics of South and Middle America disappears in proportion to the use of the airplane for passenger travel. It is quite possible for persons to leave the areas of infectious tropical diseases and enter the United States well within the incubation period of several dangerous diseases, such as yellow fever. Even transportation by ship affords some opportunities for the entry of the infectious diseases of middle and southern America, notwithstanding the highly efficient work of the United States Public Health Service at ports of entry. Thus the diseases of the tropics constitute a threat to the health of the people of the United States. This well prepared publication is one of a long series produced under the auspices of the Carnegie Institution of Washington. It is based in part on first hand observations in Guatemala and in part on reports and statistical compilations prepared by various public health agencies in Guatemala. It contains, among many other items, an analysis of the vital statistics of Guatemala, a history of the infectious diseases of that country, chapters on malaria, leishmaniasis, syphilis, yaws, tropical anemia, goiter and myxedema, helminthic infestations and the insects of Guatemala. The population of Guatemala, of approximately 2,266,682, embracing both white persons and Indians, is distributed over areas geographically more different than any extremes in the United States. The Peten and coastal areas are distinctly tropical. The midwestern portion, or highlands, contain inhabited areas with an elevation in excess of 12,000 feet. The diseases of this country, while shared to some extent by the different areas, are in part peculiarly characteristic of the differences in terrain, altitude, temperature and vegetation. This book, while recognizing a high incidence of a great variety of infectious and noninfectious diseases, which constitute major national problems, pays merited tribute to the public health forces of this small republic. Designed as a highly technical, factual public health volume, it is so engaging in its description of public health problems and enterprises that it may be recommended alike to physicians and to the public.

Handbuch der Virusforschung. Herausgegeben von Prof. Dr. R. Doerr und Prof. Dr. C. Hallauer. Erste Hälfte: Die Entwicklung der Virusforschung und ihre Problematik. Morphologie der Virusarten. Die Züchtung der Virusarten ausserhalb ihrer Wirte. Biochemistry and Biophysics of Viruses. Bearbeitet von F. M. Burnet et al. Paper. Price, 66 marks. Pp. 547, with 71 illustrations. Vienna: Julius Springer, 1938.

This is a collective work by a most competent group of specialists in a field of remarkable activity, of astounding results and of greatest scientific significance. The viruses lie at the lowest margin of the living world or beyond it, depending on the concept of the limits of living substance. They appear to be protein substances capable of self propagation within living cells and to be composed of units mostly but not wholly beyond the limits of visibility or photographic detection even with the ultramicroscope. They can be centrifuged, filtered through graded collodion membranes, purified by filtration and high speed centrifugation from organic contaminants, and inactivated and reactivated by various chemical procedures. Their dimensions can be determined within limits and their activity retained between a series of crystallizations. They differ among themselves not only in their pathologic consequences but in dimensions and in physical and chemical properties. They can be cultivated in tissue cultures and grown on chick allantoic membranes.

The historical development of virus investigations and the emergence of their varied problems is presented by Dr. Doerr of the Hygienic Institute of Basel, the sizes of the species of viruses by Dr. W. J. Elford of the British National Institute of Medical Research of London, the use of the fluorescent microscope by Dr. Haitinger of Vienna and of staining methods by Dr. Kaiser of Vienna, the relation of inclusion bodies to viruses by Dr. G. M. Findlay of the Wellcome Bureau of Scientific Research in London, the laboratory investigation of kinds of viruses outside the host by Dr. Hallauer of the Hygienic-Bacteriologic Institute of Bern, the growth of viruses on the chorio-allantois of the chick embryo by Dr. E. M. Burnet of the Walter and Eliza Hall Institute in Pathology and Medicine in Melbourne, and the biochemistry and biophysics of viruses by Dr. W. M. Stanley of the Rockefeller Institute for Medical Research at Princeton. Each of these chapters ends with a full bibliography.

This galaxy of specialists has produced a work of the highest standard of scholarship, completeness and critical estimation of the results, which are often conflicting until some new technic has resolved the difficulty. The factors which add to the complexity of the problems are the differences among kinds of viruses, the effects of contaminating substances and the control which external factors exert over results.

Among the filter passers investigated, in the order of their dimensions, which range from 750 to 6 micromillimeters, are

Bacillus prodigiosus, Spirillum parvum, the virus of psittacosis, agalactia and bovine pleuropneumonia, sewage organisms A, B and C, the virus of vaccinia (125-175), sheep pox, canary pox, venereal lymphogranuloma, rabbit fibroma, herpes (100-150) and infectious ectromelia, "fixed and street" strains of rabbit virus, the virus of pseudorabies (100-150), Borna disease, influenza both human and swine (80-120), Newcastle disease, vesicular stomatitis (four strains, 60-100), Rous sarcoma (70-100), Fujinami myxosarcoma (75-100) and fowl plague (various strains and cultures, 60-150), various bacteriophages (30-90), the virus of Rift Valley fever (23-35), equine encephalomyelitis (20-35), rabbit papilloma (25-35) and St. Louis encephalitis (20-30), bacteriophages including typhoid III (20-30), hemocyanin crystallized (18-28), the virus of yellow fever (17-27), louping ill (15-20), tobacco mosaic (several strains, 10-27), poliomyelitis (8-17) and foot and mouth disease (7-16), bacteriophages S. 13 and Phytomonas pruni (8-12), edestin crystallized (6-9), pseudoglobulin (horse [6.9]), serum albumin (horse [5.4]), oxyhemoglobin crystallized (horse [5.6]), oxyhemoglobin (sheep and monkey [5]) and egg albumin crystallized (4.3). The virus particles thus grade down nearly to large protein molecules in size.

This handbook is a closely knit condensation of a great mass of highly technical papers in many controversial fields. It will be of great service to all workers in those fields as well as all others desiring an insight into one of the most complex but significant fields of investigation of the invisible pathogens of bacteria, plants and animals.

Anatomy of the Human Lymphatic System. By H. Rouvière, Professor of Anatomy at the Medical Faculty of Paris, France. A Compendium translated from the original "Anatomie des lymphatiques de l'homme" and rearranged for the use of students and practitioners. By M. J. Tobias, Assistant Radiologist, Montefiore Hospital, New York. Cloth. Price, $4. Pp. 318, with 129 illustrations. Ann Arbor, Michigan: Edwards Brothers, Inc., 1938.

This book can be strongly recommended to physicians, surgeons and students on two counts: (1) its intrinsic merit and (2) the fact that it represents a method by which valuable books in small editions may yet be inexpensive—it is printed by photolithograph from typescript. Exact knowledge of the lymphatic vessels and of the nodes to which they lead is essential for diagnosis, prognosis and treatment of cancer and of infectious diseases. While our textbooks of anatomy have presented the facts with increasing thoroughness during recent years, Rouvière's book, devoted exclusively to the anatomy of the lymphatic system, is of great additional value because of its greater detail and its more extended report of recent work by Aagaard, Bartels, Bourgery, Gabrielle, Most, Rouvière and others. This is a translation of Rouvière's book but it is also a rearrangement of the entire text. The facts of direct application appear in the text. Matters of historical or theoretical interest are placed in a glossary at the end with appropriate references. The text represents not only careful study of the literature (768 authors) but also much original work by Rouvière and his pupils done to fill gaps or solve conflicts. The 129 illustrations of Rouvière are reproduced faithfully. An excellent index facilitates reference to any particular region. The form is good. The typescript has permitted logical and thorough paragraphing and underlining, which help in rapidity of comprehension, and the relatively low price will be welcomed by students and many others.

Berengario da Carpi. Da Vittorio Putti. Saggio biografico e bibliografico seguito dalla traduzione del "De fractura calvæ sive cranei." Classici italiani della medicina, III. Boards. Price, 100 lire. Pp. 352, with illustrations. Bologna: L. Cappelli, 1937.

The city of Carpi for more than three centuries has been proud of the anatomist and surgeon Giacomo Berengario. There is considerable doubt of this name, but investigation of documents has shown that Berengario Da Carpi was Giacomo Bariogazzi. He was born about 1460. He had his first lessons in surgery from his father, Faustino, a surgical barber. During his early years he assisted his father in many difficult operations with successful results. Berengario became involved in politics and opposed the duke of Ferrara, which resulted in several severe penalties, including his exile from Carpi.

He graduated from the University of Bologna in 1489. He learned a great deal from his famous teachers Girolamo Manfredi and Leonello dei Vittori of Faenza. What occurred to Berengario during the years from 1489 to 1500 is completely unknown. During the political wars of the time he acquired considerable experience and fame as a surgeon. During the invasion of Italy by Charles VIII of France, an unprecedented epidemic of syphilis swept the country. He attained great fame by the use of mercurial ointment, of which he was neither the inventor nor the first user.

For political reasons, in the year 1517 he was confined to Bologna, where, because of his great ability, he became a teacher of surgery in the university. In 1514 Berengario published his first book, "L'edizione del Commento a Mondino," an accumulation of his anatomic and clinical experience, a voluminous and expensive book. The following year he published a compend of the same book, "Isagoge," which met with great success. He became well known and also wealthy at this time for his exploitation of a personally made "human unguentum."

In March 1517 he was called in consultation to attend Lorenzo dei Medici, duke of Urbino, for a compound fracture of the skull, from which the patient made a complete recovery. This gained him greater fame. Two months later Berengario wrote his memorable monograph on skull fractures, "De fratura cranei." This book above all else contributed to his everlasting fame; it was dedicated to Lorenzo dei Medici. In the subsequent years Berengario was called in frequent consultations in the illnesses of the Italian nobility. The pope frequently called on him to administer aid to the higher clergy, for which he received many valuable gifts, including St. John in the Desert, painted by Raffaelli.

He was very vain and throughout his life numerous comical incidents arose, notably one with Benvenuto Cellini. After all his professional achievements and financial success, he was exiled from Bologna for unknown reasons. He again returned to Carpi, where the duke of Ferrara, who in his younger days had exiled him from Carpi, now became his intimate friend and made him surgeon for the ducal court.

These repeated social, political and professional changes show that the life of Berengario was a conflict of adversity and opportunity. He died about Nov. 24, 1530, in Ferrara. No evidence has ever been found as to where he was buried.

Principles of Medical Statistics. By A. Bradford Hill, D.Sc., Ph.D., Reader in Epidemiology and Vital Statistics in the University of London (London School of Hygiene and Tropical Medicine), London. Second edition. Cloth. Price, 6s. Pp. 189, with 9 illustrations. London: Lancet Limited, 1939.

The second edition of a book of this nature appearing only two years after the first is evidence of the demand for a simple presentation of statistical methods which can be utilized by scientists and medical men. Few changes have been made from the first edition, although a useful chapter on calculation of standardized death rates has been added. Otherwise the changes are confined to clarifying the presentation in a few places.

Annual Review of Physiology. Volume I. James Murray Luck, Editor. Victor E. Hall, Associate Editor. Published by the American Physiological Society and Annual Reviews, Inc. Cloth. Price, $5. Pp. 705. Stanford University P. O., California: Annual Reviews, Inc., 1939.

Critical reviews of scientific and medical subjects are becoming increasingly common and are serving the useful purpose of integrating the vast amount of original research work undertaken in this country and throughout the world. This first annual review of physiology is one of the newest works of this type. Its editors, confronted by the enormous dimensions of investigative work in the field of physiology, have chosen to advise the authors to attempt a critical appraisal of the contemporary field by an analysis and interpretation of the most significant contributions rather than a more comprehensive review. The result has been a series of articles on the different aspects of physiology, including growth, energy metabolism, peripheral circulation, muscle, blood and the autonomic nervous system, which in the main constitute well condensed comments on the more important advances in these fields. The bibliographies at the end of each section are well chosen, though from the nature of the case no two authorities would select exactly

the same investigations as worthy of citation. The book fills a void which has long remained unoccupied. It may be sincerely hoped that the success which attends it will be such as to encourage the editors and publishers to continue with an annual review of physiology.

Ergebnisse der Vitamin- und Hormonforschung. Herausgegeben von E. Mellanby und L. Ruzicka. Band II. Bearbeitet von G. Bertrand et al. Cloth. Price, 34 marks. Pp. 520, with 95 illustrations. Leipzig: Akademische Verlagsgesellschaft M. B. H., 1939.

The second volume of this annual publication includes seven articles by prominent investigators. May Mellanby and J. D. King discuss the relationship between dental caries and nutrition, with particular reference to the vitamins. Hans Brockmann describes the chemistry and Erick Rominger the physiology and pathology of the D vitamins. The chemistry of ascorbic acid is described by W. N. Haworth and E. L. Hirst. There is a brief chapter, written by Gabriel Bertrand, on the physiologic importance of manganese and other elements contained in animal organisms in minute amounts. J. W. Cook describes the chemistry and biologic properties of the carcinogenic substances, and Antoine Lacassagne writes on the possible relationship between the sex hormones and the production of cancer. There is an interesting chapter on the chemistry and physiology of insulin, the chemical portion being written by V. Deulefeu and the physiologic portion by B. A. Houssay. A. J. Haagen-Smit writes on the physiology and chemistry of growth hormones for plants. There is a short article by Paul Karrer on the chemistry of the flavins. V. Korenchevsky writes about the bisexual and other effects of pure male sexual hormones on females. The book contains an index of investigators mentioned in the text and also a subject index to both volume I and volume II. It is indispensable for all desiring a summary of important contributions to our modern knowledge of the vitamins and hormones.

Control of Conception: A Clinical Medical Manual. By Robert Latou Dickinson, M.D., F.A.C.S., Senior Consultant Birth Control Clinical Research Bureau. Medical Aspects of Human Fertility Series Issued by the National Committee on Maternal Health. Second edition. Cloth. Price, $3.50. Pp. 390, with 128 illustrations by the author. Baltimore: Williams & Wilkins Company, 1938.

Most recognized authorities acknowledge that the first edition of "Control of Contraception" is one of the most satisfactory and able presentations on this vital subject. It is safe to say that this book has played a prominent part in the education of physicians and their patients in the practice and theory of contraception. In general plan and scope the second edition is similar to the first. Its contents are far more extensive, however, owing to the abundant scientific contributions in the past few years. Though no radical advances have been made in the accepted views on contraception, our knowledge on this subject is more complete and on a sounder basis. Dr. Dickinson has incorporated in his book the newer work together with his considerable clinical experiences. Some of the recent advancements in reproductive physiology are also included in the appropriate sections. A most valuable feature of the book are the drawings executed by the author. These are more numerous than in the first edition and are helpful in illustrating the practical phases of therapeutic contraception. The anatomy of the male and female sex organs and the anatomy of coitus are admirably detailed and highly instructive. This book is recommended to physicians who are called on to advise on contraception. It is authoritative, conservative and comprehensive.

Le corps jaune: Étude biologique, clinique et thérapeutique. Par H. Simonnet, professeur à l'Ecole nationale vétérinaire d'Alfort, et M. Robey, interne des hôpitaux de Paris. Préface de L. Portes. Paper. Price, 50 francs. Pp. 172, with 19 illustrations. Paris: Masson & Cie, 1939.

The literature on the endocrine functions of the ovary has accumulated to such great proportions in the past decade that the authors felt a definite need for the publication of monographs on the component hormones of this organ. Simonnet has already published a review on estrogenic substances. This monograph on the corpus luteum is considerably less voluminous. It is divided into two portions, experimental studies and clinical studies, each of which contains several chapters on various phases. The anatomy, chemistry, pharmacology and physiology of the corpus luteum are discussed in the first portion in a comprehensive and concise manner. A large percentage of the literature is abstracted and presented systematically and clearly. The clinical section contains descriptions of assays for the corpus luteum hormone, pathologic changes in both anatomy and physiology and the therapeutic application of progesterone. This section is somewhat less authoritative than the first, especially in the chapter on therapy. This may be due to the present lack of information in this field, but actually it appears that the authors are not very critical of the reported clinical results obtained with progesterone. Their conception of the indications for such therapy is also somewhat unsound. On the whole, however, this monograph is a competent review of this very specialized subject.

Nedostatnist krovoobigy. Zbirnik prats konferentsiy z nedostatnosti krovoobigy, sklikanoy v. m. Kievi, z 21 po 23 grudnya 1936. Insufficiance de la circulation. Travaux de la conférence de l'insuffisance de la circulation tenue à Kiev le 21-23 décembre 1936. Paper. Price, 11 krb. Pp. 345, with illustrations. Kiev. Vidavnitstvo Akademii Nauk URSR. 1938.

This volume contains papers presented before the Conference on Circulatory Failure held in Kiev Dec. 21-23, 1936. The paper by the clinician M. D. Strazhesko dealing with controversial problems in circulatory failure and one by the physiologist L. A. Orbeli on the nervous control of the circulation reflect thorough knowledge of the subject and make interesting reading. The text is in Ukrainian and French. The volume should prove of interest to cardiologists.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Insurance: Chronic Alcoholism as Permanent and Total Disability.—Specified benefits were payable under an insurance policy if the insured became "physically or mentally incapacitated so as to be wholly and permanently unable to engage in any occupation or profession or to perform any work whatsoever for compensation, gain, or profit." In an action on the policy, instituted in February 1937, the trial court gave judgment for the insured and the insurer appealed to the Court of Appeals of Maryland.

The principal question before the court seemed to be whether the benefits provided in the policy for total and permanent inability to work were payable in event the disability sustained by the insured ceased prior to the institution of the suit for their collection. The evidence showed that the insured began to drink, immoderately, intoxicating liquor. The habit continued until he became a dipsomaniac. His condition became progressively worse, notwithstanding medical care and attention and restraint and the treatment of specialists in sanatoriums. On April 5, 1936, he became dangerously ill of chronic alcoholism. Medical attention was required and he was confined to bed. After a slight improvement, he became worse and was sent on May 19 to a local hospital for restraint and hospitalization. He remained there until June 25, when he was taken to his home in the care of a special nurse and there received medical attention until July 9, when notwithstanding all precautions, he resumed his drinking and his condition became so grave that he was then removed to a sanatorium, where he remained until his condition improved sufficiently to enable him to be released. He left the sanatorium November 20 and returned to work. After this date, the claimed total and permanent nature of the disability ended. It therefore did not exist at the time action was instituted on the policy in February 1937.

The word "permanently," the court said, was used in the policy in its relative signification of not being temporary but lasting indefinitely, so that the disability meant was the defined condition or state which would continue indefinitely without change and without reasonable grounds to anticipate an appreciable termination. But the parties to the contract, the court

continued, contemplated the probability that the physical or mental incapacity of the insured might end after he had rightly received consecutive payments of income under the agreement during a period in which it was not reasonably anticipated that his requisite disability would end at an appreciable time. The insurance policy specifically provided that the continuation of the payment of the benefits depended progressively in time on the future continuation of the subsisting period of current disability. It provided that "if it shall appear at any time that the insured is no longer totally and permanently disabled" no further benefits were to be paid. Thus by the clear import of the provisions of the policy the phrase "permanently unable" did not mean, when read in connection with the context, that the disability of the insured must endure until his death. The court held therefore that the fact that the disability had ceased did not preclude the insured from recovering the benefits for the period when he was disabled. Whether or not the insured was totally and permanently disabled within the meaning of the policy was a question properly submitted to the jury.

In the opinion of the court, there was no evidence to justify a finding that the chronic alcoholism of the insured was the result of his conscious purpose or design. On the contrary, the testimony tended to show that he had vainly tried to restrain and control his desire but a weakness of will and of character produced by the disease caused him to yield to the temptation of an overmastering appetite for intoxicating liquor. The drinking in the first stages was voluntary but there was no testimony that the drinker was then aware of the latent danger in his habit. While his consumption of alcoholic beverages was a voluntary act, yet his ignorance of its insidious effect did not make the act a voluntary exposure of himself to the unapprehended and unexpected danger of the disease of chronic alcoholism. The disease therefore may not be considered to have been self inflicted.

The court could find no reversible errors in the record and the judgment of the trial court for the insured was affirmed.—*New England Mut. Life Ins. Co. of Boston v. Hurst (Md.), 199 A. 822.*

Optometry: Injunction to Restrain Unlawful Practice; Contract Practice of Medicine Not "Private Professional Practice."—The purpose of this proceeding was to enjoin the defendants from the practice of optometry in the state of South Carolina. The defendants, Ritholz and certain others, partners, doing business in the state of South Carolina under the name of National Optical Stores Company, were engaged in the business of fitting and selling eyeglasses to the general public. They had physicians examine the eyes of prospective customers. These physicians maintained their offices as a component part of the store rooms or offices of the defendants and were guaranteed by the defendants at least forty persons for examination every week. If that many persons, at $1 for each examination, was not forthcoming the defendants made up the cash deficit to the physicians in whose offices the shortage occurred.

The plaintiffs were (1) the members of the South Carolina Board of Examiners in Optometry, (2) the South Carolina Optometric Association and (3) certain individual optometrists licensed to practice in the state, who brought action on behalf of themselves and all other persons similarly situated. The complaint alleged (1) that the defendants were practicing optometry unlawfully, (2) that they unlawfully advertised the sale of eyeglasses in a manner calculated to mislead and deceive the public and (3) that they furnished to the general public, for compensation, examinations of the eyes to determine the types of glasses needed, using for that purpose doctors of medicine who hired out and sold their medical skill to the defendants. The complaint alleged further that such conduct on the part of the defendants resulted in irreparable damage to the plaintiffs and to all licensed members of the optometric profession and was detrimental to the public.

The common pleas circuit court of Richmond County granted a temporary injunction and referred the cause to a master to hear the case on its merits and report to the court the testimony taken, together with his findings on issues of law and of fact. The defendants then appealed to the Supreme Court of South Carolina.

The authorities are in conflict, said the Supreme Court, as to whether optometry is or is not a learned profession. In South Carolina, however, the legislature had placed the practice of optometry on a parity with the practice of the professions charged with important duties to the general public. The rights of persons licensed by the state to practice optometry are, therefore, property rights which a court of equity will protect by preventing encroachment on them. The jurisdiction of a court of equity to protect such rights is not displaced by the fact that the wrongs complained of are accompanied by violations of the criminal law or in themselves constitute such violations. The defendants' theory that the criminal provisions of the optometry practice act afford an adequate remedy at law and so deprive a court of equity of jurisdiction to enjoin the defendants' activities was, in the judgment of the Supreme Court, untenable. The use of the criminal courts for the redress of private and civil wrongs is generally to be deprecated. Moreover, such use of criminal process would afford only an ineffectual remedy in cases such as that now before the court.

The optometry practice act of South Carolina exempts from its requirements physicians who are duly licensed to practice in the state, so long as they practice "in the due course of their private professional practice." Any suggestion, however, that the defendants were not engaged unlawfully in the practice of optometry, because the persons whom they employed to make examinations of the eyes of prospective customers were licensed physicians, duly exempted from the requirements of the optometry practice act, was completely answered, said the Supreme Court, by the finding of the circuit court that the physicians serving the defendants were not practicing "in the due course of their private professional practice" but were acting as the agents and servants of the defendants. If such a course were sanctioned, the result would be that corporations and business partnerships might practice law, medicine, dentistry or any other profession by the simple expedient of employing licensed agents. If this were permitted, professional standards would be practically destroyed, and professions requiring special training would be commercialized, to the public detriment. The ethics of any profession are based on personal or individual responsibility. One who practices a profession is responsible directly to his patient or his client and hence cannot properly act in the practice of his vocation as an agent of a corporation or business partnership whose interests are necessarily commercial in character.

The appellants contended in their argument that the plaintiffs were without capacity to institute this proceeding. They claimed that the board of examiners was merely an administrative board, without authority to institute such a proceeding, and that the proceeding could be maintained only in the name of the state. But, said the Supreme Court, since the court held that the purpose of the act was the protection of the private property rights of optometrists, manifestly the state was not a proper party to the proceeding. Even if the defendants were correct in their contention that the proceeding could not be maintained by the board of examiners or by the South Carolina Optometric Association, an eleemosynary corporation, certainly the individual optometrists who appeared as plaintiffs in the proceeding had full capacity to bring and to maintain the suit.

The Supreme Court affirmed the order of the circuit court enjoining the defendants from the illegal practice of optometry. —*Ezell et al. v. Ritholz et al. (S. C.), 198 S. E. 419.*

Society Proceedings

COMING MEETINGS

American Association for Thoracic Surgery, Los Angeles, July 5-7. Dr. Richard H. Meade Jr., 2116 Pine St., Philadelphia, Secretary.

Idaho State Medical Association, Boise, Aug. 23-26. Dr. J. N. Davis, 204 Fourth Avenue East, Twin Falls, Secretary.

National Medical Association, New York, Aug. 15-19. Dr. John T. Givens, 1108 Church St., Norfolk, Va., General Secretary.

West Virginia State Medical Association, White Sulphur Springs, July 10-12. Mr. Joe W. Savage, Public Library Bldg., Charleston, Executive Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1929 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Journal of Diseases of Children, Chicago

57: 739-996 (April) 1939

Anaphylactogenic Properties of Certain Cereal Foods and Breadstuffs: Allergenic Denaturation by Heat. B. Ratner and H. L. Gruehl, New York.—p. 739.
Scarlet Fever, Hemolytic Streptococcus Cultures and Dick Tests in a Children's Hospital. S. Peacock, J. A. Bigler and Marie Werner, Chicago.—p. 759.
Marble Bones: I. Clinicopathologic Observations. B. Kramer, Brooklyn, and B. Halpert, New Orleans.—p. 795.
*Serum Calcium in the Newborn. B. S. Denzer, Miriam Reiner and S. B. Weiner, New York.—p. 809.
Factors Influencing Appearance of Centers of Ossification During Early Childhood. C. C. Francis, Cleveland.—p. 817.
Intelligence Rating and Emotional Pattern of Allergic Children. R. Chobot, R. Spadavecchia and Rose M. De Sanctis, New York.—p. 831.
Basal Metabolism and Preformed and Total Creatinine in Urine of Seventy Children. C. C. Wang, Cincinnati.—p. 838.
Circulatory Function in Anemias of Children: III. Alterations in the Electrocardiogram. C. G. Parsons, Birmingham, England, and F. H. Wright, New York.—p. 851.
Emphysema of Portion of Lung in Early Months of Life. R. M. Overstreet, Portland, Ore.—p. 861.
Dental Caries Among Eskimos of the Kuskokwim Area of Alaska: I. Clinical and Bacteriologic Findings. T. Rosebury and L. M. Waugh, New York.—p. 871.
Public Responsibility for Safeguarding the Health of Children. Martha M. Eliot Washington, D. C.—p. 916.

Serum Calcium in the Newborn.—Denzer and his associates determined the calcium level in the cord blood and the blood calcium curve of ninety-one newborn infants. There was a distinct drop in the calcium level of the blood during the first four days of life, with a subsequent slow rise to a point slightly above the average level of later infancy. This depression of the calcium content was not related to race, weight at birth or neonatal loss of weight. The inorganic phosphorus content of the blood during the neonatal period was higher than the phosphorus content of the cord blood, but no definite constant curve was shown. The protein level of the blood remained constant during the neonatal period and therefore cannot affect the level of the available ionizable calcium. The data derived from a comparison of calcium and phosphorus curves in the neonatal period do not supply an adequate explanation of tetany of the newborn.

American Journal of Orthopsychiatry, Menasha, Wis.

9: 273-466 (April) 1939. Partial Index

Educating for Mental Health. F. J. O'Brien, New York.—p. 273.
Practical Value of Rorschach Test in Psychologic Clinic. Mary Hunter, Honolulu, Hawaii.—p. 287.
Rorschach Patterns Under Hypnosis. T. R. Sarbin, Minneapolis.—p. 315.
Comparison of Distributions of Clinic and Unselected Children on Stanford-Binet Intelligence Examination. M. Krugman, New York.—p. 319.
Comparative Study of Adjustment Made by Foster Children After Complete and Partial Breaks in Continuity of Home Environment. Edwina A. Cowan and Eva Stout, Wichita, Kan.—p. 330.
Therapeutic Effects of an Authoritative Situation in Children's Court. Miriam Berkman, Elaine Rappaport and Beatrice Sulzberger, New York.—p. 347.
*Study of Bereavement: Approach to Problems in Mental Disease. H. Barry Jr., Boston.—p. 355.
Contribution to Study of Neurotic Stealing Symptom. Esther Menaker, New York.—p. 368.
Treatment Possibilities in an Institution for Delinquents. H. H. Drewry, New York.—p. 379.
Causality and Treatment. H. H. Aptekar, New York.—p. 387.

Bereavement and Mental Disease.—Barry determined the proportion of maternal to paternal bereavements in relation to mental disease. Records were obtained from Greystone Park for 549 (white) psychotic persons, 306 male and 243 female. All patients studied were admitted to the hospital for the first time between the ages of 16 and 25. An incidence of 15.7 per cent of maternal bereavements during childhood was found among the 549 young patients. This may be compared with 5.3 per cent of maternal bereavements, which is the median percentage reported for several control groups of normal individuals of the same ages. The incidence of paternal bereavements among the patients was 11.1 per cent, which is substantially the same as the median percentage of the normal control groups (10 per cent). The ratio of maternal to paternal bereavements was markedly higher in the psychotic patients studied than in several control groups. The author believes that the method of contrasting maternal and paternal bereavements has sufficient theoretical importance to warrant more extensive application.

American Journal of Pathology, Boston

15: 155-278 (March) 1939

Angioreticulo-Endothelioma (Kaposi's Disease) of the Heart. R. M. Choisser and Elizabeth M. Ramsey, Washington, D. C.—p. 155.
Pathology of Nutritional Muscular Dystrophy in Young Rats. A. M. Pappenheimer, New York.—p. 179.
Influence of Inflammation on Skin Necrotizing Action of Staphylococcus Toxin. H. B. Kenton, Chicago.—p. 185.
Repair in Experimental Pneumococcic Meningitis: Histopathologic Study of Residual Lesions in Rats. P. Gross, F. B. Cooper and Marion Lewis, Pittsburgh.—p. 193.
Effect of Diet on Pathologic Changes in Rats with Nephrotoxic Nephritis. J. E. Smadel and L. E. Farr, New York.—p. 199.
*Carcinoma of Pancreas: Analysis of Forty Autopsies. R. D'Aunoy, M. A. Ogden and B. Halpert, New Orleans.—p. 217.
Experiments on Solubility of Hemosiderin in Acids and Other Reagents During and After Various Fixations. R. D. Lillie, Washington, D. C.—p. 225.
Polarized Light Method for Study of Myelin Degeneration as Compared with Marchi and Sudan III Methods. C. O. Prickett and Cornelia Stevens, Auburn, Ala.—p. 241.
Histopathology of Peripheral Nerves in Acute and Chronic Vitamin B_1 Deficiency in the Rat. C. O. Prickett, W. D. Salmon and G. A. Schrader, Auburn, Ala.—p. 251.
Response of Central Nervous System to Application of Carcinogenic Hydrocarbons: I. Dibenzanthracene. J. H. Peers, Columbia, Mo.—p. 261.
Study of Normal and Rachitic Bone Structure by Microphotographic Methods. L. Siegel, R. M. Allen, Grace McGuire and K. G. Falk.—p. 273.

Carcinoma of the Pancreas.—In 6,050 necropsies on persons more than 1 year of age D'Aunoy and his associates found forty cases of primary carcinoma of the pancreas. Males and females were represented in the proportion of 7:1. Twenty-three of the patients were more than 60 years of age. The average duration of illness was four and one-half months. Thirty-one of the neoplasms were situated in the head and nine in the tail of the pancreas. All were columnar cell carcinomas. Carcinoma primary in the head of the pancreas readily invaded the duodenum and that primary in the tail of the pancreas spread over the peritoneum. Metastases in the liver were observed in twenty-five instances.

American Journal of Psychiatry, New York

95: 1007-1258 (March) 1939. Partial Index

Electro-Encephalograms of Psychotic Patients. Pauline A. Davis and H. Davis, Boston.—p. 1007.
Effects of Vitamin B_1 in Schizophrenia. L. H. Chase, Worcester, Mass.—p. 1035.
Effects of Insulin Hypoglycemia on Blood Pressure Response to Oxygen Deficiency in Man. S. H. Kraines and E. Gellhorn, Chicago.—p. 1067.
Public Health Approach to the Problem of Convulsive Disorders. B. T. McGhie and C. R. Myers, Toronto.—p. 1077.
Study of Prolonged Coma Following Insulin Shock. D. Lester, Compton, Calif.—p. 1083.
Radiologic Gastrointestinal Studies in Epilepsy. L. J. Robinson, Palmer, Mass.—p. 1095.
Metabolic Deficiency as Possible Factor in Neuropsychiatric States. E. Wexberg, New Orleans.—p. 1127.
Mental Disorders in Triplets. A. J. Rosanoff, Leva M. Handy and Isabel Rosanoff Plesset, Los Angeles.—p. 1139.
Inadequacy of Evidence for Hereditary Predisposition in Epilepsy. E. Ziskind and Esther Somerfeld-Ziskind, Los Angeles.—p. 1143.
Bilateral Fracture of Femoral Necks Caused by Metrazol Convulsions: Report of Case. D. C. Somers and R. P. Richardson, Eloise, Mich.—p. 1193.
Theory and Principles of "Total Push" Method in Treatment of Chronic Schizophrenia. A. Myerson, Boston.—p. 1197.
Practice of Total Push Method in Treatment of Chronic Schizophrenia. K. J. Tillotson, Waverley, Mass.—p. 1205.
Finger Agnosia in Children, with a Brief Discussion on Defect and Retardation in Mentally Handicapped Children. A. Strauss and H. Werner, Northville, Mich.—p. 1215.

American Journal of Public Health, New York

29: 305-426 (April) 1939. Partial Index

Is the Health Officer Fulfilling His Responsibility in Relation to the Nursing Program? Grace Ross, Detroit.—p. 305.
Critical View of Nurses and Nursing Programs. F. J. Underwood, Jackson, Miss.—p. 318.
Possibilities and Means of Improving Dental Conditions in the United States. G. S. Millberry, San Francisco.—p. 321.
How to Improve Dental Conditions in the United States. C. E. Turner, Cambridge, Mass.—p. 326.
Immunization Against Tetanus with Alum-Precipitated Tetanus Toxoid. D. H. Bergey, C. P. Brown and S. Etris, Philadelphia.—p. 334.
Essential Problems in Pertussis. H. Emerson, New York.—p. 337.
Epidemiology of Leptospirosis. K. F. Meyer, B. Stewart-Anderson and B. Eddie, San Francisco.—p. 347.
Special Syringe for Skin Tests. T. B. Magath, Rochester, Minn.—p. 354.
Revision of Methods and Standards for Certified Milk. J. H. Brown, Baltimore.—p. 355.
Time Lost by Industrial Workers from Disabling Sickness and Accidents During the Early Days of Disability. W. M. Gafafer, Washington, D. C.—p. 359.

Am. J. Roentgenol. & Rad. Therapy, Springfield, Ill.

41: 493-684 (April) 1939. Partial Index

Bronchial Carcinoma: Roentgenologic-Pathologic Study. N. Westermark, Stockholm, Sweden.—p. 493.
Comparative Value of Radiopaque Substances Used in Uterosalpingography. I. C. Rubin, New York, and A. H. Morse, New Haven, Conn.—p. 527.
Roentgen Pelvimetry: Simplified Parallax Method. L. J. Friedman and E. J. Euphrat, New York.—p. 541.
Primary Lymphosarcoma of Duodenum. A. J. Present, La Jolla, Calif.—p. 545.
Roentgenologic Aspects of Congenitally Small Colon and of Intestinal Occlusions: Report of Five Cases. H. B. Hunt, Omaha.—p. 564.
*Acute Transient Intestinal Atony. A. Oppenheimer, Beirut, Lebanon, Syria.—p. 575.
Annular Shadows in Tuberculous Lung Treated with Pneumothorax. W. A. Zavod, Mount Vernon, N. Y.—p. 581.
Pulmonary Hemosiderosis. W. E. Anspach, Chicago.—p. 592.
*Study of Radiation Pneumonitis. Harriet C. McIntosh and Sophie Spitz, New York.—p. 605.
Epithelioma of Eyelids and Canthi: Report of Series of 324 Cases. J. R. Driver and H. N. Cole, Cleveland.—p. 616.
Statistical Study of Effect of Roentgen Rays on Wound Healing. W. G. H. Dobbs, New Haven, Conn.—p. 625.
"Double Beam" Roentgen Therapy (Simultaneous Irradiation Through Two Portals at Opposite Sides). H. F. Friedman and E. Lorenz, Boston.—p. 637.

Acute Transient Intestinal Atony. — Oppenheimer describes a peculiar disorder of the intestinal tract and states that in a number of patients referred for x-ray examination, because of some clinically obscure abdominal condition, an excessive enlargement of the colon was found roentgenologically and was reported as megacolon. For reasons of their own, the clinicians did not accept this diagnosis and the examination was repeated after three or four days. On this occasion, as well as on numerous other reexaminations during the subsequent twenty-eight months, the colon was found to be perfectly normal. In one case no clinical diagnosis could be made, in two others a diagnosis of mesenteric thrombosis was adopted on clinical grounds and in three the presence of renal calculi was demonstrated by x-ray and urologic examinations. Any technical mistake that might supposedly be responsible for the singular enlargement was excluded. In the foregoing cases most of the clinical symptoms and signs were variable and inconstant, but one symptom, acute and severe colicky pain, was present in all of them. From a study of these cases and a comparison of many patients suffering from severe pain the author concludes that acute atony of the colon, the stomach and parts of the small intestine, with spasm of the pylorus and of some intestinal loops, occurs as a result of either spontaneous or artificial irritation of the urinary tract, in disease of the gallbladder and in other types of colic. The rapid disappearance of this atony proves that the intestinal muscle itself is not damaged. This confirms the results reported by Alvarez, who found that in experimental paralytic ileus the excised intestinal muscle responds normally to stimulation. Paralysis of the intestine, whether transient or persistent, may be produced by inhibitory impulses acting on the digestive tract. Alvarez showed that this inhibition may be produced by irritation of the peritoneum, and the author's observations prove to him that it may originate also in extraperitoneal organs such as the renal pelvis. This observation explains also the fact that urinary disorders often induce gastrointestinal symptoms even when there is no question of uremic poisoning. From the practical point of view it is important to know that megacolon, as well as gastric and intestinal disorders, can be simulated roentgenologically and that, roentgenologically, functional disorders may resemble actual anatomic changes, especially as regards the digestive tract.

Radiation Pneumonitis.—McIntosh and Spitz studied the underlying pulmonary changes in sixty patients with mammary cancer who received roentgen irradiation. Radiation pneumonitis was found in some degree in thirty-six. Observations are based on correlations between pulmonary tissue doses and x-ray appearance and available necropsy material. Kilovoltage higher than 200 kilovolts (peak) was not used. Pulmonary changes are found in proportion to the amount of radiation received in the lung, except that the lungs of elderly persons with arteriosclerosis are especially prone to pneumonitis and permanent fibrosis. In women less than 60 years of age, unless showing premature senility, pulmonary tissue dosage of less than 3.5 threshold erythema doses through any considerable part of the treated lung rarely produces changes demonstrable roentgenologically. The milder grades of roentgen pneumonitis are symptomless and clinically insignificant. Of fifteen patients with severe roentgen pneumonitis ten had symptoms, usually cough and dyspnea, found chiefly from two to six months after treatment. In only two cases did genuine discomfort from cough persist beyond this time. Five patients had short bouts of clinical bronchopneumonia at the height of their pulmonary reaction, with recovery in all. Only one had a second attack, a patient more than 80 years of age. Irradiation pneumonitis and pulmonary metastasis must be differentiated because if metastasis is present palliative treatment may be indicated, but if pneumonitis is present more treatment is obviously undesirable.

American Journal of Surgery, New York

44: 337-532 (May) 1939

Discussion of Relative Values Endorsed by the Medical Profession as They Affect Malignancy of the Uterus. J. W. Kennedy, Philadelphia.—p. 340.
Renal Infections in Pregnancy and the Puerperium. L. Herman and C. W. Mucklé, Philadelphia.—p. 344.
Recurrent Renal and Ureteral Calculi: Management and Prevention. H. M. Spence and S. S. Baird, Dallas, Texas.—p. 348.
Surgical Problem of the Degenerative Goiter Heart. A. E. Hertzler, Halstead, Kan.—p. 358.
Pneumonectomy for Carcinoma of the Lung: Report of Case. J. E. Strode, E. A. Fennel and C. M. Burgess, Honolulu, Hawaii.—p. 364.
Pneumatology. P. J. Flagg, New York.—p. 373.
Decline in Incidence of Tuberculosis of Bones and Joints. B. P. Farrell and E. M. George, New York.—p. 380.
Peroneal Nerve Lesions in Orthopedic Conditions. E. Freund, Los Angeles.—p. 387.
Coccygodynia. E. A. Nixon, Seattle.—p. 390.
Repair of Cranial Defects with Celluloid. K. W. Ney, New York.—p. 394.
*Painless Rendering Closure of Superficial Wounds. M. Gosis, South Ozone Park, N. Y.—p. 400.
Treatment of Varicose Veins in Pregnancy. J. Siegler, Jersey City, N. J.—p. 403.
*Treatment of Amenorrhea of Endocrine Origin. S. H. Livingston, C. Birnberg and L. Kurzrok, Brooklyn.—p. 409.
*Trichomonas Vaginalis Vaginitis: Further Studies in Use of Iodochlorhydroxyquinoline. F. B. Zener, Portland, Ore.—p. 416.
Gastric Resection: Plea for the Two Stage Operation. J. L. De Courcy, Cincinnati.—p. 422.
Significance of Stasis in Roentgen Interpretation of Gallbladder Pathology. P. R. Casellas, Chicago.—p. 426.

Painless Closure of Surface Wounds.—Gosis outlines a method of closing superficial wounds without pain. When there is no coexistent laceration of muscle or deep fascia, the skin surrounding the wound is cleaned of any foreign matter, washed with soap and water and wiped dry. After this, compound tincture of benzoin is painted on the skin and permitted to dry. Flaming the adhesive tape will allow it to adhere to the painted skin for at least ten days without irritation or loosening. Strips of adhesive tape are cut about one-half inch wide and long enough to project about three-fourths inch beyond the ends of the wound. If the wound is large and gaping, a wider piece of adhesive tape is used. The adhesive strips are placed on the prepared skin, about one-fourth inch away from the edges of the wound and as parallel to them as possible. The strips are then sutured together with surgeon's silk or any household thread of suitable strength. As each bite is taken and drawn tight, the edge of the adhesive tape through which the suture

was just passed is gently pressed down with the fingertip or thumb forceps. This prevents slipping and avoids the necessity of keeping the suture continually on tension. As the thread is drawn tight, the wound edges approximate by themselves. With practice, inversion of the edges is easily avoided. It is best to leave no elevation of the adhesive tape near the wound for insertion of the needle and thread. A thin curved cutting edge needle is simply slipped between the skin and the superimposed adhesive tape. When sharp angles or corners of tissue must be approximated, it is best to apply preliminary strips of tape at the angle of the wound. A suture or two through these will fasten the angles of the laceration in proper position. After that, strips are applied as previously described and sutured in the usual manner. This method, the author points out, promotes wound healing in cases in which gross infection has not occurred at the time of injury by lessening the amount of additional trauma inflicted on a wound by penetrating sutures. Should infection ensue, there is no obstacle to self drainage. The sutures are removed without any pain.

Treatment of Amenorrhea of Endocrine Origin.—Livingston and his colleagues used estrogen in the treatment of thirteen cases of amenorrhea. Bleeding and enlargement of the uterus with improvement in secondary sexual characteristics was produced in every case. One patient became pregnant, while under treatment, after eight months of amenorrhea. Four patients continued to menstruate after treatment was discontinued, and one of these subsequently became pregnant after three years of sterility. The gonadotropic substance was used in five cases of amenorrhea, and bleeding occurred in three. One of these three later became pregnant. Dilation of the cervix to produce menstruation through pituitary stimulation was successful in the two cases in which it was attempted. One of these patients subsequently became pregnant after twelve years of sterility.

Trichomonas Vaginalis Vaginitis.—Zener supplements the report (abstracted in THE JOURNAL, March 13, 1937, page 921) of the vioform (iodochlorhydroxyquinoline) treatment of Trichomonas vaginalis vaginitis. He has treated a total of 106 cases and obtained cures in 98.1 per cent. A number of cases which tend to substantiate the theory of rectal origin of the disease are reported. A routine of treatment which the author is now using is not only directed at the vaginitis but also eradicates the organism from the rectum, thereby reducing recurrences to an absolute minimum. 1. Vioform powder insufflations are given at least three times a week, as therapy for the vaginitis. 2. Vioform is given orally in dosage of four 4 grain (0.26 Gm.) tablets daily in order to eradicate the rectal infestation. The basis for this therapy is the excellent results obtained by David and others with vioform in the eradication of parasitic infestations of the intestinal tract.

Archives of Dermatology and Syphilology, Chicago

39: 793-954 (May) 1939

Lupus Erythematosus Disseminatus: Its Present Status. G. H. Belote, Ann Arbor, Mich.—p. 793.
Window Patch Test. B. T. Guild, Boston.—p. 807.
*Action of Soap on Skin. I. H. Blank, Boston.—p. 811.
Trophic Ulcer Following Encephalitis Lethargica. S. J. Rosenberg, Perry Point, Md., and J. Solovay, Camp Custer, Mich.—p. 825.
Osteitis in Early Syphilis: Report of Case. J. B. Squires and A. L. Weiner, Cincinnati.—p. 830.
Syphilis and Public Opinion (Spirochaeta Pallida, Homo Sapiens and Mrs. Grundy). M. Moore, Boston.—p. 836.
*Allergic Dermatitis Simulating Lymphoblastoma. A. B. Cannon, New York.—p. 846.
Herpes Zoster with Generalized Eruption: Report of Three Cases. J. Grindon Jr., St. Louis.—p. 865.
Early Acute Arsenical Erythemas: Study of Eleven Cases of "Erythema of the Ninth Day" of Milian. O. Cañizares and E. W. Thomas, New York.—p. 867.

Action of Soap on Skin.—In determining the cutaneous action of soap, Blank performed patch tests with various pure and mixtures of fatty acids. Saturated fatty acids of low molecular weight yield a much higher percentage of positive reactions to patch tests than do acids of higher molecular weight. Persons with normal skin give positive reactions to fatty acids of low molecular weight as frequently as do persons with pathologic changes of the skin. Fatty acids of a molecular weight higher than that of capric acid produce reactions somewhat less frequently on normal than on skin with pathologic changes. Positive reactions to unsaturated oleic acid occur about as frequently as do positive reactions to saturated acids of high molecular weight. Certain fatty acids give a more intense reaction when maintained at a p_H of 7 than at a p_H of 5. Diminished reactions at a p_H of 3 have also been observed. It is proposed that neither the alkali nor the fatty acid alone is responsible for the irritation produced by soap but that each is a contributing factor and that the higher the molecular weight of the fatty acid, the more alkali will be required before irritation results. In 150 cases of contact or atopic dermatitis a mixture of 25 per cent sulfonated mixed olive and teaseed oils, 25 per cent liquid petrolatum and 50 per cent water, which has a p_H of approximately 6.5, has been substituted for soap. Most of these patients have found this mixture a satisfactory detergent. Irritations followed the use of the material in less than 10 per cent. In eighteen cases in which there were remissions with the use of the oil mixtures, relapses occurred when soap was again used.

Allergic Dermatitis Simulating Lymphoblastoma.—Cannon discusses eight cases, of a group of about eighty, that he has followed closely. These patients suffered from a condition which closely simulated the lymphoblastoma group of diseases but which was considered after careful study to be of different origin. The disease was in all cases of many years' duration and had been variously diagnosed, both clinically and histologically, by prominent dermatologists, as mycosis fungoides, leukaemia cutis and Hodgkin's disease. Beginning in every instance as a simple dermatitis suggestive of an allergic reaction, the condition progressed through cycles of cutaneous thickening, exfoliation and lichenification to the formation of plaques and tumors resistant to all the usual forms of treatment. An examination of the patients not only by the usual clinical and laboratory methods but also in relation to their environment, antecedents and social and economic situation led the author to believe that the condition was not a malignant process or even a nonmalignant disease entity but a simple cutaneous inflammatory phenomenon of allergic origin. This belief, he says, was further confirmed by the striking response that occurred when the patients were removed from their previous environment and also when known irritants were eliminated. The condition in question can be differentiated from the malignant diseases of the lymphoblastoma group by systematic clinical and microscopic studies and proper correlation of results.

Arkansas Medical Society Journal, Fort Smith

35: 209-230 (April) 1939

Anemia. L. D. Massey, Osceola.—p. 209.
The Irritable Colon. S. F. Hoge, Little Rock.—p. 211.
Allergy in General Practice. N. L. Miller, Oklahoma City.—p. 215.

35: 231-252 (May) 1939

Collapse Therapy of Pulmonary Tuberculosis. C. R. Gowen, Shreveport, La.—p. 231.
Treatment of Scabies. C. B. Erickson, Shreveport, La.—p. 234.

Canadian Public Health Journal, Toronto

30: 171-218 (April) 1939

Heart Disease and Cancer Mortality Trends: Part I. Mary A. Ross and N. E. McKinnon, Toronto.—p. 171.
Food Consumption of Twenty-Nine Families in Edmonton, Alta. Mary Sandin, Mabel Patrick and A. Stewart, Edmonton, Alta.—p. 177.
Survey of Rocky Mountain Spotted Fever and Sylvatic Plague in Western Canada During 1938. R. J. Gibbons, Ottawa, Ont.—p. 184.
The Department of Health and the Practicing Physician. D. V. Currey, St. Catharines, Ont.—p. 188.
*Mussel Poisoning. J. Gibbard, F. C. Collier and E. F. Whyte, Ottawa, Ont.—p. 193.
Plumbing-Borne Diseases. R. St. J. Macdonald, Montreal.—p. 198.
Ancylostomiasis in a Chinese Patient. W. B. McClure and W. E. L. Sparks, Toronto.—p. 207.

Mussel Poisoning.—Gibbard and his associates state that specimens of mussels and clams have been collected from various localities during the past season. The objective was to determine whether or not mussels become toxic and whether or not poisonous mussels are confined to any definite localities. To date about 200 collections have been made. Poisonous shellfish have been received from only one main area in Nova Scotia, Digby Neck. This poison is similar to the poison found in California mussels and in all probability is at least closely

related to if not identical with the mussel poison described by Meyer and his co-workers. Two species of mussels, Mytilis edulis and Modiola modiolus, have been found to be toxic. So far as can be learned the latter species of mussel has not been previously incriminated in human outbreaks of mussel poisoning.

Endocrinology, Los Angeles

24: 599-762 (May) 1939. Partial Index

*Treatment of Dysfunctional Uterine Bleeding with Testosterone Propionate. C. Mazer and M. Mazer, Philadelphia.—p. 599.

Termination of Pregnancy of Dogs by Gonadotropic Antihormone. K. W. Thompson, New Haven, Conn.—p. 613.

Assay of Gonadotropic Extracts in the Postpartum Rabbit. M. H. Friedman, Philadelphia.—p. 617.

Depression of Gastric Secretion by Anterior Pituitary-like Fraction of Pregnancy Urine. C. U. Culmer, A. J. Atkinson and A. C. Ivy, Chicago.—p. 631.

Effect of Estrogenic Hormone on Experimental Tuberculosis. L. A. Gray and C. B. Brack, Baltimore.—p. 645.

Study of Thyrotropic Hormone in Clinical States. M. S. Jones, New York.—p. 665.

Influence of Hyperthyroidism on Vitamin C Content of Various Endocrines and Tissues. B. Sure and R. M. Theis, Fayetteville, Ark.—p. 672.

Calorigenic Efficiency of Thyroid Material in Relation to Thyroxine and to Iodine Content. A. E. Meyer and Anne Wertz, Brooklyn.—p. 683.

*Effect of Testosterone Propionate on Urinary Excretion of Androgens and Estrogens in Eunuchoidism. W. H. Hoskins, J. R. Coffman, F. C. Koch and A. T. Kenyon, Chicago.—p. 702.

Influence of the Vehicle on Length and Strength of Action of Male Hormone Substance, Testosterone Propionate. J. B. Hamilton and R. I. Dorfman, New Haven, Conn.—p. 711.

Effect of Iodine on Interstitial Cells of Testis. C. W. Hooker and G. C. Newman, New Haven, Conn., and Durham, N. C.—p. 720.

Testosterone Propionate for Dysfunctional Uterine Bleeding.—The Mazers used androgen in the treatment of thirty-eight women with menstrual disorders. Twenty-nine of the patients had metrorrhagia for periods averaging twelve weeks with a minimum of four weeks, and nine had menorrhagia for an average period of seventeen months with a minimum of four months. The patients were given testosterone propionate in sesame oil intramuscularly three times a week for from two to nine weeks. The individual dose varied from 2.5 to 25 mg. A cure was considered to have been effected if the abnormal bleeding ceased during the period of treatment and did not recur for at least four months after treatment was stopped. The follow-up period ranged up to nineteen months with an average of eight months. Patients who were only improved are considered not cured. By these criteria, twenty-six of the thirty-eight patients were cured and twelve were only temporarily or not at all improved by the therapy. No constitutional or local ill effects were encountered by any of the thirty-eight patients. The menstrual rhythm of the thirty patients who were menstruating regularly prior to the onset of the abnormal uterine bleeding was not disturbed. There was no obvious tendency toward a reduction of fertility by the doses employed, as four of the patients conceived within one to ten months after the withdrawal of treatment without a tendency to abortion. Three of the patients were delivered of normal infants and one had an induced abortion. The menopausal symptoms complained of by a number of patients were not influenced by the doses employed. The possibility of evoking masculine characteristics with the use of large doses of testosterone over a long period of time must be borne in mind. A tendency to virilism, though mild and temporary, was shown by four patients who were treated with large doses of testosterone for other conditions than dysfunctional uterine bleeding. Two of the four had an apparent increase of facial hair. The other two, girls of 14 years, had a definite decrease in the pitch of the voice.

Testosterone Propionate in Eunuchoidism.—According to Hoskins and his co-workers the daily intramuscular injection of 25 mg. of testosterone propionate for periods of from nine to fourteen days brought about rises in the urinary androgens of four eunuchoids from basal levels of from 2 to 16 international units a day to from 44 to 115 international units a day and of urinary estrogens from the equivalent of 0.3 to 5 micrograms of estrogen a day to that of 5 to 15 micrograms of estrogen. This constitutes a restoration to normal values for both groups of substances. Both androgen and estrogen values fell toward pretreatment levels when medication was stopped. The changes in androgen and estrogen excretion paralleled the physiologic effects of testosterone propionate in the organism. Of three patients for whom the cause of the hypogonadism was unknown the extent of recovery of administered testosterone was 65, 49 and 49 per cent respectively, on the assumption that half of the excreted material by weight is androsterone and half dehydroandrosterone. The recovery was 20 per cent for a patient whose pituitary was damaged by a suprasellar cyst. The rise in urinary estrogens to normal values following the administration of androgen suggests that the urinary estrogens of normal male urine may be derived in part from the metabolism of the testis hormone. However, the increase in the excretion of estrogen represents only 0.06 per cent of the androgen injected.

Johns Hopkins Hospital Bulletin, Baltimore

64: 213-278 (April) 1939

Macrocytic Anemia in Association with Intestinal Strictures and Anastomoses: Review of Literature and Report of Two New Cases. W. H. Barker and L. E. Hummel, New York.—p. 215.

*Diabetes, Insulin Action and Respiratory Quotient. E. M. Bridge and Eleanor A. Winter, Baltimore.—p. 257.

Diabetes, Insulin Action and Respiratory Quotient.—Bridge and Winter tried to correlate the action of insulin with the blood sugar and the respiratory quotient in diabetic subjects. The study shows that the respiratory quotient of regulated diabetic patients bears no consistent relation to the intensity of the insulin effect as measured by blood sugar. Hypoglycemia may occur while the respiratory quotient is high, average, stationary or falling. A constant or decreasing respiratory quotient at a normal or moderately low level may be found during periods in which the blood sugar rises to high diabetic levels; no time relationship was apparent between the respiratory quotient and the trends toward frank diabetes. The observations cannot be reconciled with the view that insulin acts as a specific stimulus to carbohydrate combustion. At present, control of the blood sugar level in diabetes is often considered synonymous with control of the disease itself. Insulin and diet are adjusted with this single criterion in mind. But in the partially regulated patient hypoglycemia may indicate no more than an excessive deposition of muscle glycogen, and hyperglycemia may develop without changing that more fundamental aspect of carbohydrate physiology; viz., combustion. Since neither the intensity of the diabetic process nor the effectiveness of insulin dosage is measurable directly by blood sugar regulation, it is obvious that emphasis may be wrongly placed if the blood sugar level is considered the sole criterion of regulation. Theoretically, four aspects of carbohydrate metabolism would seem to deserve attention for judging the regulation of diabetic patients: ketosis, respiratory quotient level, conditions affecting the efficiency of insulin action and blood sugar fluctuations. It appears that the major aspect of the disturbance of carbohydrate metabolism in diabetes, which has been offered from time to time in the literature and the foregoing data affirm, is centered in the liver. The evidence for this theory comes from several sources: 1. Removal of the liver from diabetic dogs causes a rapid disappearance of the diabetic symptoms. 2. Insulin appears to influence carbohydrate combustion in diabetes only indirectly. This influence seems to be associated with changes in the glycogen content of the liver. 3. Carbohydrate combustion and respiratory quotient appear to be related to the glycogen content of the liver. 4. The overproduction of dextrose from protein, from glycogen and possibly also from fat in diabetes represents a process which is in many respects the opposite of the inability to form dextrose from these same precursors in hepatic insufficiency.

Journal of the Mount Sinai Hospital, New York

5: 649-720 (March-April) 1939

Problem of High Blood Pressure in Man. G. W. Pickering, London, England.—p. 649.

Massive Cerebral Hemorrhage: Its Antecedent and Precipitating Factors. J. H. Globus, New York.—p. 657.

Phrenic Nerve Interruption in Para-Esophageal Hernia: Report of Two Cases. I. Cohen, New York.—p. 690.

Uterine Biopsy Curettage, Its Value in Diagnosis of Genital Tuberculosis: Report of Case. S. Wimpfheimer, New York.—p. 693.

Phagedenic Ulcer Treated with Zinc Peroxide. N. Mintz, New York.—p. 697.

Purulent Meningitis Produced by Minute Hemolytic Streptococcus (Long and Bliss) and Bacillus Coli. A. Thomas, New York.—p. 702.

Sympathetic Pleural Effusion in Lung Abscess. L. J. Freedman, New York.—p. 705.

Journal of Pharmacology & Exper. Therap., Baltimore

65: 343-484 (April) 1939. Partial Index

Additional Data Concerning Chemistry of Pressor and Oxytocic Hormones of Pituitary Gland. R. L. Stehle and S. M. Trister, Montreal. —p. 343.

*Studies on Phenothiazine: VIII. Antiseptic Value of Phenothiazine in Urinary Tract Infections. F. DeEds, A. B. Stockton and J. O. Thomas, San Francisco.—p. 353.

Sulfanilamide Concentration and Distribution in Blood and Urine in Sulfanilamide Therapy for Gonococcic Infections in Men. L. Hansen, Philadelphia.—p. 372.

Inhibition of Choline Esterase by Thiamin (Vitamin B_1). D. Glick and W. Antopol, Newark, N. J.—p. 389.

Some Pharmacologic and Toxicologic Properties of Sulfanilamide and Benzylsulfanilamide. H. Molitor and H. Robinson, with technical assistance of O. Graessle, Rahway, N. J.—p. 405.

Effect of Acacia on Blood. R. L. Jackson and Lois Frayser, Iowa City. —p. 440.

Antiseptic Value of Phenothiazine.—In the treatment of thirty-three patients with chronic and sixteen with acute infections of the urinary tract, DeEds and his colleagues used phenothiazine in average daily doses of 1.33 Gm. for an average of 7.4 days. Ten patients with acute infections of the urinary tract were permanently relieved of symptoms, and pus and bacteria disappeared from the urine. Cystoscopic examination showed an increase in the capacity of the bladder and a decrease in hyperemia of the bladder mucosa. Five patients with chronic inflammation of the urinary tract were clinically cured and twenty were improved. Several patients included in the "improved" group were "cured" as long as they remained under observation, but they failed to report during the four week period arbitrarily established as necessary before the patient was pronounced "cured." Only eight of the forty-nine patients failed to secure relief from symptoms of inflammation of the urinary tract following the administration of the drug. No undesirable effects from the drug could be demonstrated in the gastrointestinal tract, circulation, kidneys or liver. Anemia occurred in only a few cases (three) after an average total dose of 23.3 Gm., which is far beyond the usual therapeutic dose. The anemia was apparently hemolytic in nature, since there was an early reticulocyte response and a rapid regeneration of the blood, which would not have occurred if there had been injury to the bone marrow.

Military Surgeon, Washington, D. C.

84: 405-536 (May) 1939. Partial Index

Problems Facing the Medical Department of the Army. C. R. Reynolds. —p. 405.

Work and Aims of the United States Public Health Service. T. Parran. —p. 411.

Selection of the Trainee for Military Aviation. N. C. Mashburn.—p. 428.

Treatment of Maxillomandibular Fractures at Aid Station and at Base Hospital. C. C. Gilkison.—p. 441.

Specific Somatic Polysaccharide as Essential Immunizing Antigen of Typhoid Bacillus. F. B. Wakeman.—p. 452.

Dental Aspect of Pemphigus Vegetans. J. A. Boston.—p. 473.

Trends in Anesthesia—Walter Reed General Hospital 1926 Through 1937. J. F. Gallagher.—p. 475.

Admission of Violent or Suicidal Patients to a Military Hospital. F. E. Weatherby.—p. 486.

Notes on the Civilian Conservation Corps of Interest to the Physician. C. W. Winsor.—p. 491.

Missouri State Medical Assn. Journal, St. Louis

36: 185-224 (May) 1939

Shall Medicine Remain Independent? Address of the President. B. W. Hays, Jackson.—p. 185.

The Missouri State Medical Association: Past, Present and Future: Address of the President-Elect. J. R. McVay, Kansas City.—p. 186.

Constitutional Factor in Mental Disorder. E. T. Gibson, Kansas City. —p. 188.

Insulin and Metrazol Shock Therapy: Review of Two Years Work at the Farmington State Hospital. C. C. Ault and E. F. Hoctor, Farmington.—p. 190.

Advancement of Methods of Care of the Mentally Ill. F. A. Carmichael, St. Joseph.—p. 191.

Place of Psychiatry in Medical Education. G. W. Robinson Jr., Kansas City.—p. 194.

Syphilis and Marriage. A. B. Jones, St. Louis.—p. 196.

Development and Essentials of the Private Psychiatric Hospital. P. E. Robinson, Kansas City.—p. 198.

The Lost Drain and Its Roentgen Ray Identification. H. S. Crossen and W. G. Scott, St. Louis.—p. 202.

Recent Advances in Therapeutics. O. P. J. Falk, St. Louis.—p. 210.

New England Journal of Medicine, Boston

220: 691-728 (April 27) 1939

Blood Dyscrasias, with Special Reference to Splenectomy. J. H. J. Upham, Columbus, Ohio.—p. 691.

Fifteen Year Review of Obstetrics at the Faulkner Hospital. J. R. Torbert and R. M. Smith, Boston.—p. 697.

Posterior Vaginal Hernia. F. F. Cary and E. L. Young, Boston.—p. 700.

Psychiatry. A. W. Stearns, Boston.—p. 709.

New Orleans Medical and Surgical Journal

91: 521-580 (April) 1939

Biographic Chronology of Past Presidents of Louisiana State Medical Society: Brief Summary of Meetings and Activities of Past Presidents' Advisory Body. R. Matas, New Orleans.—p. 521.

Standford E. Chaillé: An Appreciation. I. Cohn, New Orleans.—p. 524.

Peritoneoscopy. G. McHardy, New Orleans.—p. 528.

Gastroscopy. D. C. Browne, New Orleans.—p. 533.

Preliminary Report on Chaoul Therapy. S. Hatchette, Lake Charles, La. —p. 537.

Chronic Ulcerative Colitis: Diagnostic and Therapeutic Problem. A. L. Levin and M. Shushan, New Orleans.—p. 540.

Common Cold and Influenza as Virus Diseases. R. H. Turner, New Orleans.—p. 551.

Pathology of Virus Diseases. H. J. Schattenberg, New Orleans.—p. 553.

*Morphine: Dangerous Drug in Chronic Asthma. R. M. Balyeat, Oklahoma City.—p. 556.

Danger of Morphine in Asthma.—Balyeat believes that morphine should seldom be used in the treatment of chronic asthma. Patients with chronic asthma, with or without bronchiectasis, have a tendency to drown in their own secretions. The asthmatic attack is nothing more than nature's means of trying to force out of the small tubes or bronchiectatic areas the tenacious and purulent secretions. Owing to the lining of the larger tubes with secretions and to the plugging of the bronchioles, it is difficult for the asthmatic person to obtain a sufficient amount of oxygen. Therefore respiration is frequently increased from the normal sixteen to twenty up to thirty or forty a minute. Morphine will partially or totally destroy the cough reflex and at the same time, acting centrally on the respiratory center, materially reduce the number of respirations. Because of the changes in the chest, the number of respirations are materially increased so as to give the asthmatic patient plenty of oxygen, and often when the number is reduced the amount of oxygen allowed to pass through the heavily lined bronchial tubes is not sufficient to sustain life. Many physicians do not carry epinephrine hydrochloride (1:1,000 dilution) with them but morphine is always in their grip. Therefore when a patient suffering from an asthmatic paroxysm is visited morphine is given. Not uncommonly asthmatic patients with a tolerance to epinephrine are seen. Under such conditions 0.5 Gm. of aminophyllin in 20 cc. of physiologic solution of sodium chloride should be given intravenously, or an equal mixture of ether and olive oil should be given by rectum. Frequently through lack of knowledge of the value of these two procedures or because of the inconvenience, morphine is given. The author reports five cases in which he feels reasonably sure that morphine was the immediate cause of death.

Northwest Medicine, Seattle

38: 113-156 (April) 1939

Argentaffine Tumor of Appendix: Case Report. B. P. Mullen, Seattle. —p. 116.

Tubal Insufflation and Salpingography. C. M. Helwig, Seattle.—p. 118.

Treatment of Solitary Polyp of Colon. O. F. Lamson, Seattle.—p. 119.

Acute Perforation of Peptic Ulcers. C. E. Hagyard, Seattle.—p. 121.

Colostomy. J. Duncan, Seattle.—p. 122.

Bilateral Abductor Cord Paralysis. B. T. King, Seattle.—p. 125.

Strictures of Urethra. O. A. Nelson, Seattle.—p. 126.

Lumbar Hernia. W. Kelton, Seattle.—p. 127.

Chronic Peptic Ulcers in Children. H. B. Kellogg, Seattle.—p. 129.

Silk Suture Material. E. A. Nixon, Seattle.—p. 131.

Arachnodactylia. H. J. Wyckoff, Seattle.—p. 134.

Congenital Deformities of External Ear. H. E. Coe, Seattle.—p. 135.

Problems in Plastic Surgery. D. H. Palmer, Seattle.—p. 136.

Dupuytren's Contraction. H. D. Dudley, Seattle.—p. 138.

Treatment of Fractures of Os Calcis. H. E. Allen, Seattle.—p. 140.

End Results of Nailing Fractures of Neck of Femur. E. LeCocq, Seattle. —p. 141.

Psychiatric Quarterly, Utica, N. Y.

13: 203-386 (April) 1939

Brain Pathology in Four Cases of Schizophrenia Treated with Insulin. A. Ferraro and G. A. Jervis, New York.—p. 207.
Some Aspects of Homosexuality in Relation to Total Personality Development. D. M. Hamilton, White Plains, N. Y.—p. 229.
Reaction of Juvenile Delinquent Group to Story and Drama Technics. E. Davidoff and Gertrude Buckland, Syracuse, N. Y.—p. 245.
Review of the Research Aims of the New York State Psychiatric Institute and Hospital, 1938. N. D. C. Lewis, New York.—p. 259.
Postemotive Schizophrenia. P. Milici, Kings Park, N. Y.—p. 278.
Incontinence in Acutely Psychotic Patients. J. M. Hill, Houston, Texas.—p. 294.
*Etiology and Prevention of "Lung Abscess" in Metrazol Therapy. M. Zeifert, Brooklyn.—p. 303.
The Psychotherapy of Hospitalization. S. R. Lehrman, Utica, N. Y.—p. 309.
Psychiatric Evaluation of Afferent Stimuli and Learning Processes. W. Marshall, Appleton, Wis.—p. 322.
The "One-Contact" Case: Problem in Community Psychiatric Practice. R. A. Jensen and L. H. Smith, Philadelphia.—p. 330.
Effect of Insulin Hypoglycemic Shock Therapy on Hepatic Function. L. L. Bryan and G. C. Bower, Marcy, N. Y.—p. 346.
Induced Hypoglycemic Shock in Cryptogenic Epilepsy. G. E. Metcalfe, Helmuth, N. Y.—p. 348.
Modifications in Insulin Treatment of Schizophrenia. D. Ruslander, Buffalo.—p. 357.
Fatality Following Insulin Therapy: Case Presentation. J. M. Murphy, Willard, N. Y.—p. 361.

"Lung Abscess" and Metrazol Therapy.—Since October 1937 Zeifert has induced about 8,500 metrazol convulsions and about fifty camphor convulsions. Despite all precautionary measures an occasional pulmonary "abscess" appeared. He observed that pulmonary complications occurred only in cases in which delay occurred between the entrance of blood into the syringe and the actual injection of its contents into the vein. He proceeded to review from the roentgenologic aspect all cases of "lung abscess," and from the great similarity of the clinical pictures he concluded that the etiologic factor in all the cases was pulmonary embolism on which a process of suppuration was subsequently superimposed. Investigation then converged on the problem of determining where the emboli originated and how they were introduced into the blood stream. The blood of some patients coagulates more rapidly in metrazol solution than that of others. The author has seen small blood clots appear in the syringe within fifteen seconds after the needle entered the vein. Reinjection of such bits of clotted blood will result in embolism. He devised a method for the prevention of this complication by adding an anticoagulant to the metrazol solution. He prepared a 10 per cent solution of metrazol in a vehicle consisting of 2.5 per cent chemically pure sodium citrate in distilled water. This solution was then autoclaved and examined for any alteration. As no change was apparent, it was administered to a group of patients in the regular therapeutic dose. The usual dose produced the typical grand mal type of metrazol seizure. Apparently there was no change in the convulsive property of the metrazol or pharmacologic change as a result of the mixture of the two drugs. The author has used this anticoagulating metrazol solution for the last eight months, during which time no pulmonary complications have developed in any of his cases. Since the introduction of the anticoagulant into the convulsive solution he has induced 3,200 convulsions without a single case of pulmonary embolism or any other pulmonary complication.

Public Health Reports, Washington, D. C.

54: 673-724 (April 28) 1939

*Lymphocytic Choriomeningitis: Report of Two Cases, with Recovery of Virus from Gray Mice (Mus Musculus) Trapped in the Two Infected Households. C. Armstrong and L. K. Sweet.—p. 673.
Maternal Mortality in Rural and Urban Areas. H. F. Dorn.—p. 684.
Disabling Industrial Morbidity, Third and Fourth Quarters of 1938 and the Entire Year. W. M. Gafafer.—p. 691.
Effectiveness of Certain Types of Commercial Air Filters Against Bacteria (Bacillus Subtilis). J. M. DallaValle and A. Hollaender.—p. 695.

Lymphocytic Choriomeningitis.—Armstrong and Sweet report two established cases of lymphocytic choriomeningitis. The finding of active choriomeningitis virus in three of five mice trapped in the homes of the patients and the failure to find the infection in twenty-one mice trapped in eight homes and buildings wherein no human cases of the disease had occurred indicated that the association between the human cases and the infected mice is more than a coincidence. It is believed that the mice constituted the source of the human infection since: 1. In each instance the patient was ill in the home for only four days before being hospitalized. 2. The housewife in both households apparently suffered infection, while one mate escaped and the only evidence of infection in the other members of the household was a moderate degree of immunity as judged by serum-virus neutralization test. These observations suggest an exposure to infection in the home rather than a human-contact infection. 3. The capture of a less than half grown infected mouse in the home of one of the patients eighty-seven days after the patient had been removed from the house indicated the existence of an active infection in the mice independent of the presence of a recognized human case. 4. The presence in one home of a person who possessed strongly developed antibodies at a time when the patient's immunity was but partially developed suggests that the case did not constitute the initial introduction of the virus into the household. The observations suggest that gray mice, Mus musculus, constitute a reservoir of choriomeningitis infection from which human cases may be contracted.

Radiology, Syracuse, N. Y.

32: 391-520 (April) 1939

Osteogenesis Imperfecta Tarda. J. F. Lutz and L. C. Pusch, York, Pa.—p. 391.
Present Status of Mitogenetic Radiation. A. Hollaender, Madison, Wis.—p. 404.
Value of X-Ray Examination of Sella Turcica in Sagittal Positions. P. L. Fariñas, Havana, Cuba.—p. 411.
Retroperitoneal Cyst with Agenesia of Kidney. K. Kornblum and J. A. Ritter, Philadelphia.—p. 416.
Some Histologic Tumor Variants and Their Influence on Radiosensitivity. I. A. B. Cathie, Manchester, England.—p. 425.
Unusual Manifestations of Bone Tuberculosis. B. P. Widmann, H. W. Ostrum and R. F. Miller, Philadelphia.—p. 434.
*Roentgen Treatment of Menstrual Dysfunctions and Sterility: Analysis of 108 Cases. S. Bruck and J. M. Fruchter, Philadelphia.—p. 446.
Fever Therapy in Gonococcic Infections. W. Bierman and C. L. Levenson, New York.—p. 454.
Occurrence of Two or More Primary Malignant Lesions. J. J. Collins, Thomasville, Ga.—p. 462.
Radiosensitivity and Recurrent Growth in Obelia. P. S. Henshaw, New York.—p. 466.
Shadow of Cardiac End of Stomach Simulating Soft Tissue Tumefaction in Supine Position. L. Nathanson, Brooklyn.—p. 473.

X-Rays for Menstrual Dysfunctions and Sterility.—Bruck and Fruchter discuss the endocrine factors governing the normal menstrual cycle and also the endocrine imbalance in the production of menstrual dysfunctions and sterility as it is related to the pituitary and ovary. They treated 108 cases of various menstrual dysfunctions (amenorrhea, oligomenorrhea, menorrhagia and metrorrhagia) in single and married women, with and without sterility, with roentgen rays. From their summary of the results obtained they believe that they are justified in stating that, although this treatment is empirical and its mode of action is not as yet understood, it is definitely worth while and gives a fifty-fifty chance to those women in whom all other methods have been tried and found wanting. Pregnancy took place in 45 per cent of women with deficient menstruation and sterility.

United States Naval Med. Bulletin, Washington, D. C.

37: 213-366 (April) 1939

Review of Treatment of Syphilis. R. A. Vonderlehr.—p. 213.
Syphilis in the Navy. G. H. Ekblad.—p. 217.
Cardiovascular Syphilis. W. H. H. Turville.—p. 237.
Examination of Spinal Fluid in Syphilis: Results of Initial Examination in 140 Cases. E. M. Wade.—p. 246.
Syphilitic Data Record Form. M. R. Wirthlin.—p. 253.
Splenectomy for Gastric Hemorrhage in Splenomegaly Associated with Syphilis: Case Reports. G. E. Stahr.—p. 256.
Utilization of Psychiatry in the Armed Forces. D. G. Sutton.—p. 262.
Psychiatry and the National Defense. H. S. Sullivan.—p. 273.
Recruiting Duty: Plea to Medical Officers for Increased Efficiency. G. E. Thomas and W. J. C. Agnew.—p. 276.
Endamoeba Histolytica and Other Intestinal Parasites: Incidence in Variously Exposed Groups of the Navy. J. J. Sapero and C. M. Johnson.—p. 279.
Cholera in Shanghai War Refugees. A. R. Higgins.—p. 287.
Observations on Tetanus in Guam (1905 to 1937). M. W. Arnold and T. W. McDaniel Jr.—p. 289.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Dermatology and Syphilis, London

51: 109-150 (March) 1939

*Familial Case of Acne Vulgaris with Lesions Suggesting a Relationship to Acne Conglobata. F. F. Hellier.—p. 109.
Testosterone Propionate in Acne Vulgaris. I. D. Riley.—p. 119.
Some Notes on Biologic Determination of the Erythema-Dose of X-Rays in Roentgen Units. W. N. Goldsmith.—p. 126.
Wandering Subcutaneous Swellings on Limbs. F. P. Weber.—p. 132.

Familial Acne Vulgaris Suggesting Acne Conglobata.—It seems probable to Hellier that in many cases of chronic pyodermatic cutaneous lesions the importance of the "terrain" is at least equal to that of the infecting organism in determining the character of the eruption. He believes that the case which he reports illustrates this clearly, for, while the patient himself showed a condition allied to acne conglobata, other members of his family showed varying degrees of less severe involvement down to an apparently ordinary acne vulgaris. The patient presented acne-like pustules and scars extending over the trunk and limbs, with large infiltrated plaques on the buttocks oozing pus from fistulas, sebaceous cysts, rhinophyma and a coarse type of skin. Following the excision of a large inflammatory plaque from the buttock, a squamous carcinoma developed. The relation of this case to acne conglobata is discussed and it is suggested that the latter condition depends on the patient's reaction for its characteristic appearance rather than on the type of invading organism. Several other members of his family showed one or more of a group of symptoms, which included diminished resistance to acne organisms, a tendency to comedone formation and excessive scarring, a coarse skin and rhinophyma, sebaceous cysts and possibly mental sluggishness. It is suggested that these symptoms are dependent on some factor or factors which are inherited as mendelian dominants.

British Medical Journal, London

1: 657-706 (April 1) 1939

*Longevity of Oarsmen: Study of Those Who Rowed in the Oxford and Cambridge Boat Races from 1829 to 1928. P. H.-S. Hartley and G. F. Llewellyn.—p. 657.
Chronic Urticaria. N. Burgess.—p. 662.
Induction of Labor: Combined Method of Premedication with Castor Oil and Quinine, and Artificial Rupture of Membranes. Eileen C. Wise.—p. 665.
Treatment of Lime in Eye. G. C. Pether.—p. 668.
*Treatment of Acute Sprains by Procaine Infiltration (Leriche's Method). E. J. Moynahan.—p. 671.

Longevity of Oarsmen.—Hartley and Llewellyn determined the life span of 376 Oxford and 391 Cambridge oarsmen who were on the respective crews between 1829 and 1928. The actual deaths during the several periods (from 1829 to 1862, 1863 to 1893, 1894 to 1923 and 1924 to 1928) are compared with those expected according to the standard tables. In each of the periods and age groups the comparison favors the oarsmen. Thus, taking the lives as a whole, the actual numbers of deaths in the four periods were only 87.8, 76.7, 85.1 and 93.5 per cent of the expected mortality. Over the whole period of the investigation the mortality experience of university oarsmen was appreciably superior to that of assured lives of their own generation, but of later years this relative superiority has shown a tendency to diminish. The study gives no support to the idea that strenuous rowing by healthy subjects, when combined with adequate training, places any undue strain on their cardiovascular system or other organs and leads to any diminution of longevity. Looking at the figures from another angle, the mortality of oarsmen has maintained a uniform level of excellence, but the general body of assured lives has only recently approximated to this level. The oarsmen have been compared with a body of men living at the same time, insured and accepted for life insurance at ordinary rates and free from any serious blemish but probably not possessing those advantages of physical fitness and social and economic standing enjoyed by the athletes concerned. The ideal would be to compare the life-expectancy of the oarsmen with that of their fellow graduates, living at the same period and under similar conditions but not participating in such strenuous exercise.

Treatment of Acute Sprains by Procaine Infiltration.—Moynahan used a 2 per cent solution of procaine hydrochloride in the treatment of seventeen cases of sprained ankles, one of the wrist, two of the fingers, two of the thumb, two of the knee and two of the back. In every case pain and swelling were definitely decreased and the period of incapacity was considerably less than when the more usual treatment was given, confirming the results of Campbell (1938), who used Leriche's method. The procaine infiltration method has wider applications than the treatment of sprains. Leriche and Froehlich (1936) used it successfully in the treatment of certain fractures, particularly those involving a joint requiring early mobilization, as well as in dislocations, chronic effusions and many other conditions. Recently Campbell had success with it in the treatment of ankle fractures. The author found that it gives a dramatic and lasting cure of such minor annoying complaints as "stiff neck," "fibrositis," lumbago and vague muscular pains. The injection of a small quantity of procaine hydrochloride into the tender spots in the trapezius in cases of "stiff neck" results in a dramatic, almost instantaneous cure.

Edinburgh Medical Journal

46: 221-304 (April) 1939

Neurology: Some Modern Problems. W. R. Russell.—p. 221.
Rational Use of Digitalis. A. R. Gilchrist.—p. 233.
Debatable Tumors in Human and Animal Pathology: VII. Granulosa-Cell Tumor of the Ovary. W. F. Harvey, E. K. Dawson and J. R. M. Innes.—p. 256.
*Addison's Disease: Diagnostic Significance of Sodium and Chlorine Content of Blood and Urine. H. W. Dryerre.—p. 267.
Observations on Virus of Influenza, with View to Elaborating a Simple Diagnostic Test Whereby Its Presence in the Respiratory Tract of Man May Be Revealed. W. J. Tulloch.—p. 278.

Addison's Disease.—Having available several cases of Addison's disease, Dryerre decided to test, under carefully controlled conditions, the claims made for the adrenocortical insufficiency test proposed by Cutler, Power and Wilder. The test was carried out on fourteen subjects. Four of these were known to have Addison's disease and five were patients suffering from some debilitating condition whose features resembled in some way or other those of adrenal insufficiency, but all were diagnosed clinically as not suffering from Addison's disease. The remaining five subjects were normal healthy control individuals. The results reveal that on the third day of the administration of a salt-poor potassium-high diet the concentration of sodium in the urine is much higher in patients with adrenal insufficiency than in control subjects. Under the conditions of the test, the concentration of urinary chlorine in patients with adrenal insufficiency did not differ from that in the control subjects with the consistency that was claimed by Cutler, Power and Wilder. The concentrations of sodium and chlorine in the blood serum of patients with Addison's disease may not differ materially from those of control subjects. Cutler, Power and Wilder state that their procedure "subjects the patient to less risk of collapse than the six-day period of restricted intake of salt heretofore resorted to for diagnostic purposes." The author states that, while this claim is no doubt correct, it is apparent that even a three-day period is not without risk, particularly with a high potassium intake. The test should not, therefore, be undertaken without due precautions. These involve the careful clinical observation of the patient throughout the test and the giving of adequate quantities of a potent cortical extract and, if necessary, saline dextrose solutions intravenously, on the first signs of the developing of a crisis.

Indian Medical Gazette, Calcutta

74: 129-192 (March) 1939

Some Notes on Clinical Heart Disease. G. Kelly.—p. 129.
Pellagra. L. E. Napier.—p. 136.
Notes on Cases of Pellagra Encountered in Calcutta. P. C. Sen Gupta, M. N. Rai Chaudhuri, R. N. Chaudhuri and L. E. Napier.—p. 143.
Note on Pellagra, with Special Reference to the District of Kangra (Punjab). N. L. Bajaj.—p. 145.
*Microsporum New to India. P. A. Maplestone and N. C. Dey.—p. 148.
Observation on Pathology and Therapy of So-Called Frontier Sore. H. J. Hamburger.—p. 151.
Suprapubic Lithotomy. F. R. W. K. Allen.—p. 156.

Microsporum New to India.—Maplestone and Dey discuss the occurrence of seven cases of microsporon infection of the scalp caused by a fungus heretofore unknown in India. The clinical, microscopic and cultural characters are given. Culturally it

grows slowly and shows two types of growth—a raised faviform type and a flat type. The type of growth resembles that of Microsporon ferrugineum. The cultures were various shades of brown, whereas brown has only occasionally been observed in Microsporon ferrugineum, in which deep yellow is most usual. The morphology is similar to that of Microsporon ferrugineum and possibly a variant. Of seven cases recorded three were treated by the authors. The first case had multiple patches on the scalp and was treated with roentgen rays. An epilation dose was administered after the technic of Adamson. Twenty-one days after the exposure, while there was a partial epilation, a patch 2 inches in diameter was noticed behind the left ear and was treated twice daily with a preparation containing 0.65 Gm. of thymol, 0.7 cc. of oil of cinnamon and 30 cc. of mild solution of iodine. Along with this application, manual epilation was done and the patient was discharged cured in about three weeks. The second patient showed a few tiny spots and was treated with the application of the same paint along with manual epilation. He was discharged cured in a month. In the other patient a single patch on the right parietal eminence about 2 inches in diameter was treated for three months with the same preparation. About three months later with apparent continuous treatment she came back with multiple patches on the scalp. The same paint was continued for two months along with manual epilation. As the progress was slow, 2 drachms (8 cc.) of glacial acetic acid was added to an ounce (30 cc.) of the foregoing preparation. The patient was discharged cured after using this new application for three months.

Journal of Hygiene, London

39: 91-216 (March) 1939

Long-Term Experiment with Rats on Human Dietary: II. Calcium and Phosphorus Depletion and Replacement. W. E. Gaunt, J. T. Irving and W. Thomson.—p. 91.
Effect of Withdrawing Mice from an Infected Herd at Varying Intervals. M. Greenwood, A. B. Hill, W. W. C. Topley and Joyce Wilson.—p. 109.
Further Studies on Sterilization of T. A. B. C. Vaccine. S. G. Rainsford.—p. 131.
*Bacterium Paratyphosum C as Cause of Enteric Fever in Egypt. M. S. Nabih.—p. 143.
Anthrax in Mink (Mustela Vision). A. W. Greener.—p. 149.
Susceptibility of the Golden Hamster (Cricetus Auratus) to Bovine, Human and Avian Tubercle Bacilli and to Vole Strain of Acid-Fast Bacillus (Wells). A. S. Griffith, histologic observations by W. Pagel.—p. 154.
*Concentration of Carcinogenic Materials in Mineral Oils by Distillation Processes. J. M. Twort and R. Lyth.—p. 161.
Specificity of Antiserums Against Crystalline Serum Albumin. Muriel E. Adair and J. Hamilton.—p. 170.
Diphtheria: Suggested Explanation of Relative Change in Age Incidence. E. A. Cheeseman, W. J. Martin and W. T. Russell.—p. 181.
Estimation of Physique and Nutrition in Children. A. W. Tuxford.—p. 203.

Bacterium Paratyphosum C as Cause of Enteric Fever.—Nabih records, for the first time, the isolation of Bacterium paratyphosum C in Egypt. He isolated it from the urine of nine patients and the feces of two patients suffering from enteric fever during the summer of 1937 and the early part of 1938. Its frequency is comparable with that of Bacterium paratyphosum A and may exceed that of Bacterium paratyphosum B. Its inclusion in prophylactic vaccines, along with the usual T. A. B. vaccine is worthy of consideration.

Carcinogenic Materials in Liquid Petrolatum.—A range of commercial distillates of a topped crude Borneo, liquid petrolatum were tested by Twort and Lyth for carcinogenic activity and they found that the peak was around a viscosity at 25 C. of from 200 to 250 centipoises. The whole range of oils was biologically active. This activity had been foreseen from an examination of the physical characteristics, alone sufficient to condemn the utilization of any single representative as a lubricant when likely to come into contact with the user. A greater concentration of the carcinogenic material was obtained by molecular distillation of oils than by ordinary distillation at from 3 to 10 mm. The middle fractions of a Borneo crude oil were mostly responsible for pathologic changes in the organs—fatty infiltration of the liver and hyaline degeneration of the spleen. Pulmonary tumors were more prevalent than is usual when utilizing this type of agent for testing carcinogenicity for the skin. Their incidence was somewhat higher in the more viscous fractions but was not apparently related to their carcinogenicity for the skin.

Journal of Physiology, London

95: 239-344 (March) 1939. Partial Index

Method for Continuous Recording of Systolic Arterial Pressure in Man. J. Doupe, H. W. Newman and R. W. Wilkins.—p. 239.
Effect of Peripheral Vasomotor Activity on Systolic Arterial Pressure in Extremities of Man. J. Doupe, H. W. Newman and R. W. Wilkins.—p. 244.
Vasomotor Reflexes in Man Following Duodenal Distention. E. A. Carmichael, J. Doupe, A. A. Harper and B. A. McSwiney.—p. 276.
"Anticurare" Action ot Subthreshold Catelectrotonus. B. Katz.—p. 286.
Effects of Stimulation of Cervical Sympathetic Nerve and Superior Cervical Sympathetic Ganglion on Blood Sugar. M. Hill and W. d'A. Maycock.—p. 328.

Lancet, London

1: 677-740 (March 25) 1939

Classification of Buccal Neoplasms in Relation to Treatment and Prognosis. A. J. Gardham.—p. 677.
*Anginal Syndrome Due to Hypothyroidism. G. E. Beaumont and J. D. Robertson.—p. 682.
*Cyclopropane "Sleep" with Percaine Spinal Anesthesia in Major Abdominal Operations. H. Dodd and J. T. Hunter.—p. 685.
Pulmonary Tuberculosis: Disappearance of Tubercle Bacilli from Sputum During Treatment. B. R. Clarke and D. W. Wallace.—p. 688.
Stricture of Small Intestine. A. Caplan and W. B. Roantree.—p. 689.
*Treatment of Postencephalitic Parkinsonism with Bulgarian Belladonna. F. J. Neuwahl.—p. 693.

Anginal Syndrome Due to Hypothyroidism.—Beaumont and Robertson describe a case which was originally diagnosed as angina of effort. No clinical evidence of myxedema was found, but the basal metabolism rate was —33. Under adequate treatment with thyroid extract the patient was enabled to return to work and his anginal symptoms disappeared. With either an overdosage or an underdosage of thyroid extract his symptoms recurred. The case emphasizes the fact that subtotal thyroidectomy for the relief of angina may incur the danger of increasing the symptoms unless myxedema and "masked hypothyroidism" have been excluded.

Cyclopropane "Sleep" with Nupercaine Spinal Anesthesia.—Dodd and Hunter used a combination of nupercaine spinal with cyclopropane general anesthesia in seventy major operations (mostly abdominal). The preanesthetic used throughout the series was 0.02 Gm. of pantopon, 1/150 grain (0.0004 Gm.) of scopolamine and 0.85 cc. of a 25 per cent solution of pyridine betacarbonic acid diethylamine (coramine). The spinal anesthetic was a 1:2,000 solution of nupercaine. The general anesthetic was cyclopropane delivered through a Heidebrink continuous flow machine. Oxygen was usually necessary. The advantages of this method are the tranquil respiration, a rapid return to consciousness, the absence of nausea and vomiting during the operation and the absence of major thoracic postoperative complications. Cyclopropane tends to keep the blood pressure from falling and has no toxic effect on the liver or the kidneys. The postoperative sedative was 0.01 Gm. of morphine (or alternatively 0.005 Gm. of diacetylmorphine) and 0.85 cc. of coramine. The addition of cyclopropane "sleep" to spinal anesthesia is an undoubted improvement, a pleasant and effective anesthetic for the patient and a material aid to the surgeon in abdominal operations.

Postencephalitic Parkinsonism and Bulgarian Belladonna.—Neuwahl used an extract of Bulgarian belladonna in the treatment of 123 cases of postencephalitic parkinsonism. The results were remarkably good in the majority of cases and no relapses were recorded. The preparation has now been standardized and gave better results in its new form than the former decoction in white wine. Equally good results can be obtained if the English belladonna root is substituted for the Bulgarian. In only six cases was there a difference in action. Toxic reactions result from the administration of high doses and can be avoided by beginning with small doses and gradually increasing them until the individual's optimum is found. The treatment is contraindicated and useless in cases of chronic epidemic encephalitis. From three to fifteen months after the patients' maintenance doses were fixed and they had returned home it is found that nine are not improved, two are slightly improved, twenty-nine are moderately improved, twenty-seven are greatly improved, fifty-one are symptomatically cured, two have died of intercurrent disease and three have died of a recurrent attack of encephalitis. Fifty-five of the entire group of patients are fit for work.

Archives des Maladies du Cœur, Paris

32: 241-336 (March) 1939

Systolodiastolic Constant. C. Lian and Baraige.—p. 241.
*Electrocardiogram of Persons with Hypertension. D. Routier and J. Gerbeaux.—p. 249.
Spontaneous Rupture of Heart on Tenth Day of Myocardial Infarct. J. Lenègre and A. Mathivat.—p. 255.
Rupture of Heart. H. Mondon and F. Moreau.—p. 263.
Luciani-Wenckebach Periods in Course of Myocardial Infarct. Regnier and Reuders.—p. 266.
Multiple Painless Infarcts of Myocardium. B. Jochweds, M. Plonskier, B. Kelner and M. Goldstein.—p. 276.

Electrocardiogram in Hypertension.—Routier and Gerbeaux say that all investigators who have given their attention to the electrocardiographic aspects of hypertension have observed a left ventricular predominance, which is reflected in the electrocardiogram by a deviation of the electrical axis of the rapid wave toward the left. After reviewing the reports of several investigators, the authors describe their own observations on 300 patients, all of whom they examined clinically, roentgenologically and with the electrocardiograph. In many instances they also made a blood count, determined the sedimentation speed, the urea content and the cholesterol content of the blood, inspected the fundus oculi and made diverse functional tests of the kidney. Summarizing their observations, the authors say that in 38 per cent of the examined patients the electrocardiogram was either normal (19 per cent) or showed a simple deviation toward the left (19 per cent), but in 62 per cent there were strong pathologic changes. Of the latter group 75 per cent presented an inversion of the T wave in the first lead. In correspondence with this the silhouette shows a large, globular heart and in the cases which could be verified there was an unequal distribution of the ventricular hypertrophy; it was considerable toward the base but nonexistent at the top, where the heart appeared slender. The authors conclude that the electrocardiographic examination of the patients with hypertension is a means to explore the condition and function of the heart and of the arterial system and thus it is of primary importance in the prognosis.

Bruxelles-Medical, Brussels

19: 710-741 (April 9) 1939

Osseous Transplantation in Treatment of Tumors of Bone. S. Hybbinette.—p. 710.
*Sulfanilamide and Tuberculosis. H. Faniel, A. Jeurissen, R. Courtois and F. Dwelshauvers.—p. 725.

Sulfanilamide and Tuberculosis.—Faniel and his associates point out that although the mode of action of sulfanilamide is not completely understood as yet it is evidently active particularly against streptococcic, gonococcic and meningococcic processes and in coccic disorders in general. Some investigations seem to indicate that the therapeutic value of sulfanilamide is the result of a specific action on the elements constituting the microbic capsule, but the substance seems to have also a certain modifying effect on the humors of the diseased organism. In this connection the authors cite the case of a young mother and her child. When the mother continued to have an elevation of temperature after her delivery she was given sulfanilamide and two days later there was a decrease. Simultaneously with this improvement in the mother, certain cutaneous symptoms in the nursling subsided and the authors suggest that the improvement in the nursling must be attributed to the modification of the maternal milk by the sulfanilamide. They think that it would be interesting to investigate whether the sulfanilamide passed directly into the milk or whether it produced humoral changes in the mother. Following remarks about the dose of sulfanilamide in relation to the body weight, the authors discuss the characteristics of the tubercle bacillus, which might play a part in its behavior toward sulfanilamide. They point out that it is encapsulated and that its capsule is particularly resistant. Since a review of the literature disclosed contradictory reports about the action of sulfanilamide on the tubercle bacillus, they decided to try sulfanilamide themselves on tuberculous patients. They found that irrespective of the mode of administration (oral, intramuscular or intravenous) it was generally well tolerated. They cite several case histories and stress that they resorted to sulfanilamide only in cases in which no other treatment was indicated. At the appearance of albumin in the urine, the administration of sulfanilamide was interrupted. Although on the whole there were no dangerous reactions, neither can it be said that the treatment resulted in an appreciable modification of symptoms. The only advantage that could be observed was a diminution in the expectoration with a modification in the aspect of the sputum. Apparently the sulfanilamide acts on the associated micro-organisms, but it seems to have no effect whatever on the tubercle bacillus.

Journal de Chirurgie, Paris

53: 449-592 (April) 1939

Hypotension of Cerebrospinal Fluid Following Closed Traumatisms of Cranium. E. Delannoy and R. Demarez.—p. 449.
*Arterial Air Embolism. E. Curtillet.—p. 461.
Congenital Pseudarthrosis of Leg: Osseous Deformity of Neurofibromatosis. Ducroquet and Cottard.—p. 483.
Painful, Posttraumatic Osteoporosis of Wrist. J. Patel and L. Gozland.—p. 503.

Arterial Air Embolism.—Three cases of arterial air embolism, all three of which developed in connection with surgical operations on the lung, induced Curtillet to study the problem of arterial air embolism. Realizing that only direct microscopic observations on living animals could solve certain problems of arterial air embolism, he made experimental studies on frogs and on the ears of rabbits. After citing some of his earlier reports on these studies, he presents in this paper a general study of the problem. He defines as arterial air embolism an accident characterized by the entrance of air into a pulmonary vessel and its transport by the blood current to the arterial regions of the systemic circulation. He disregards venous embolism. Crossed embolism, however, which, as regards its symptomatology, prognosis and therapy presents a veritable arterial embolism, he considers in this report. The author takes up the pathologic physiology and anatomy of arterial air embolism and then discusses the clinical and therapeutic aspects. In the conclusion he emphasizes that arterial air embolism has become frequent since the advancement of pulmonary surgery and artificial pneumothorax. From the physiopathologic point of view it is important to consider separately the progression of air in the large arteries, where besides the influence of the blood current it undergoes that of gravity, and in the small arteries, of which it occupies the entire lumen. The microscopic study of the air bubbles in the small vessels permits interesting observations. The bubbles do not reach the vessels of a caliber less than 30 microns; that is to say, they never reach the capillaries. Arrested in the arterioles from 30 to 40 microns in diameter, they are rapidly absorbed. The passage of the air of the arteries into the veins is effected by the arteriovenous anastomoses the caliber of which is in excess of 30 microns and thus it can be understood that the passage is possible only in the regions endowed with these channels: the members, the face, with the exclusion of the visceral regions which do not have them or at least do not have channels large enough. Without doubt it is the abnormal existence in the lung of arteriovenous anastomoses the diameter of which is in excess of 30 microns which explains the crossed embolisms developing in spite of the absence of interauricular communications. The microscope also makes it possible to specify the mode of reestablishing the circulation of the blood in the course of the progression and of the resorption of air as well as the nature of the local vascular reactions which cause the embolism. The fatal quantity of air, from 0.5 to 3.3 cc. per kilogram of weight, and the causes of death (cerebral or cardiac) in arterial embolism were studied according to the work of Allen, Hrdina and Clark. In the clinical study the author presents three case histories and stresses the etiologic importance of pneumectomy, pneumotomy, pneumothorax therapy and so on. In remarks about the symptomatology, he says that the nervous symptoms dominate the clinical picture. He mentions, among others, tonic and clonic contractions with exaggeration of the tendon reflexes, monoplegia or hemiplegia, generalized convulsions, coma, sensations of malaise, cold sweats, pallor and so on. Amaurosis, either unilateral or total, is the result of embolism of the retinal artery. The author observed this symptom in two of his three cases and regards it as especially important. In remarks about the treatment he stresses the reclining position as a preventive measure and says that acetylcholine is probably of therapeutic value, because of its vasodilatory effect.

Presse Médicale, Paris

47: 469-484 (March 29) 1939

Neurogenic Tetanies. J. Decourt and G. Tardieu.—p. 469.
*Ovarian Dysfunction and Dermatoses: Therapeutic Action of Androgen in Certain Varieties of Psoriasis and Eczema. A. Lafitte and G. Huret.—p. 472.

Ovarian Dysfunction and Dermatoses.—Lafitte and Huret present the clinical history of five women from 16½ to 55 years of age whose diseases—some of long standing—successfully responded to treatment with testosterone acetate and after classic therapeutic measures failed to respond. The dermatoses reported were those of psoriasis and eczema and were found on the face, hands, lower limbs or universally. The treatments specifically mentioned varied from five injections of 10 mg. every other day to five monthly injections extending over three months and were applied between the twelfth and the twentieth day of the menstrual cycle. The method of administration, whether oral or otherwise, is not stated. In all these cases dermatitis was accompanied with great menstrual and mammary pain. The authors were able to effect permanent cures. They conclude that the results obtained with testosterone acetate clearly indicate that the seat of cutaneous diseases treated was ovarian imbalance and that, consequently, this therapy is effective only when cutaneous lesions are secondary to ovarian abnormalities. The best results were obtained, they say, in cases of especially severe menstruation and mastodynia. The authors are of the opinion that probably ovarian dysfunction may center in hyperfolliculism. Coexistence of psoriasis and eczema with ovarian disturbances on this background suggests the use of androgen. They think that other morbid manifestations such as urticaria, migraine, Quincke's edema, asthma and perhaps also hepatovesicular and intestinal disorders in women with the same pathologic indications might be benefited by this treatment.

47: 485-500 (April 1) 1939

*Diagnostic Study of Pseudotumoral Encephalitis. H. Roger, M. Arnaud and J.-L. Paillas.—p. 485.
Surgical Treatment of Cancer of Left Flexure of Colon and of High Situated Cancer of Rectum with Conservation of Sphincter. H. Finsterer.—p. 488.

Pseudotumoral Encephalitis.—Roger and his associates point out that the term "pseudotumor" was first applied by Nonne in 1904 to those cases the clinical aspects of which simulated a cerebral tumor but in which the favorable development or the postmortem observations contradicted the diagnosis of tumor. Nonne's description included different meningeal, arachnoidal and parenchymatous lesions. In this report the authors present a diagnostic study of the inflammatory parenchymatous lesions. They first discuss the progressive forms of encephalitis, which, although more rare than the regressive forms, are better known. Among the forms of progressive encephalitis the leuko-encephalitides are the most important; they may appear in the form of Heubner-Schilder's disease and of Balo's disease. After describing the aspects of these two types, they report the clinical history of a case observed by themselves. The clinical aspects of this case are identical with those of a case of leuko-encephalitis of Balo described by Barré and Van Bogaërt. The regressive forms of pseudotumoral encephalitis the authors classify into two groups. In the first group they combine the localized or circumscribed forms with a focal symptomatology, which are especially likely to simulate cerebral tumor. They describe the clinical histories of several cases of this type. The second group includes the more diffuse forms, in which the symptomatology varies greatly. The authors report the clinical histories of three cases of this type. Reviewing the clinical elements, which might be of value in the differentiation between neoplasm and encephalitis, the authors show that they are inconstant and of doubtful value. About the examination of the cerebrospinal fluid they say that the syndrome of intracranial hypertension with papillary stasis contraindicates lumbar puncture; the examination of the ventricular fluid, which they performed in the course of ventriculography, always showed normal results. Ophthalmoscopy reveals papillary edema; the diagnosis of pseudotumoral encephalitis can be based on this sign. The papillary edema is accompanied by considerable lowering of the visual acuity and abnormal modification of the visual field, but the most noteworthy ophthalmologic aspect is the absence of retinal arterial hypertension. Ventriculography gives the most reliable information for the detection of pseudotumoral encephalitis. Moreover, it may even exert a favorable therapeutic influence. The prognosis of pseudotumoral encephalitis varies. Leuko-encephalitis has a fatal outcome but the regressive forms usually end favorably. The treatment consists in the early intense and prolonged administration of diffusible anti-infectious medicaments. Moreover, the endocranial insufflation of air may exert a powerful therapeutic effect. Craniotomy, besides being of exploratory value, is effective as a decompressive measure.

Archivio Italiano di Anatomia, Bologna

9: 509-612 (April) 1939. Partial Index

*Systematic Study of Arteriosclerosis of Pancreas. G. Villarà.—p. 509.
Systematic Study of Arteriosclerosis of Spleen. G. Villarà.—p. 529.
Chronic Thrombosis of Pulmonary Artery. D. Ruffilli.—p. 546.
Primary Cancer of Peritoneum: Case. G. Fragalà.—p. 595.

Arteriosclerosis of Pancreatic Vessels.—Villarà studied the blood vessels of the head of the pancreas of fifty persons who had died over the age of 60. Arteriosclerosis had existed in forty-two of the cases. The author found arteriosclerosis in this site more frequent and more acute in women than in men. The pathologic changes of the vessels cannot be seen by the naked eye but are observable microscopically. The most frequent microscopic types are (1) hypertrophic thickness of the walls of the vessels, especially in the middle coat of the arterioles, minute vessels and precapillaries and (2) hypertrophy, hyperplasia and delamination of the internal elastic coat of the middle sized and large arteries. Hyaline and fat degeneration are frequent and thrombosis of the arteries may exist in some cases. There is a correspondence between the type and frequency of arteriosclerosis of the pancreatic vessels and those of the arteriosclerosis in the duodenal vessels, and between the former and the type and frequency of arteriosclerosis of other segments of the digestive tract, of the kidneys and of the thyroids. A relation between arteriosclerosis of the insular vessels and that of the parenchymal pancreatic vessels or between insular and parenchymal pancreatic arteriosclerosis and either hypertension or diabetes does not exist.

Archiv für Kinderheilkunde, Stuttgart

116: 145-224 (March 24) 1939

*Visceral Rheumatism During Childhood. L. Aschoff.—p. 145.
Clinical Observations on Congenital Malformations of Digestive Tract. V. Koszler.—p. 151.
Occurrence of Rare Fungus (Cephalosporium Acremonium Corda) in Blood in Tonsillogenic Sepsis. M. Debusmann.—p. 172.
Psychology and Prognosis of Juvenile Paralysis. Wilhelma Muthmann. —p. 179.
*Nature of Erythema Nodosum (Observation on Its Occurrence After Measles Following Consumption of Raw Milk). P. Kessler.—p. 189.
Local Sensitivity to Tuberculin and Protection Aganist Tuberculosis G. Hensel.—p. 206.

Visceral Rheumatism During Childhood. — Aschoff accepts the classification which Lötz suggested for the rheumatic diseases of childhood, differentiating the following forms: (1) acute specific articular rheumatism called also infectious rheumatism; (2) the nonspecific polyarthritides which may be produced by the distant action of various bacteria, especially diplococci, streptococci (coccic rheumatism of Gräff), tubercle bacilli or other types of bacteria and for which the existence of a so-called focus of infection is a prerequisite; (3) the so-called rheumatoids in scarlet fever, serum disease and so on; (4) primary chronic arthritis, especially Still's disease, and (5) muscular inflammations and myalgias, which, however, are comparatively rare during childhood. Aschoff shows further that several investigators agree that infectious rheumatism is the most frequent form of the rheumatic diseases occurring during childhood. He directs special attention to discussions by Klinge, Gräff and Ricker, pointing out that the last named author laid stress on Bouillaud's studies on the visceral forms of acute articular rheumatism. Aschoff agrees with Ricker in the acceptance of the term Bouillaud's disease but thinks that since it was Gräff who first demonstrated the primary focus of this disease, who detected the rheumatic nodules on the visceral organs other than the heart and who differentiated this form of infectious rheumatism from the other forms of rheumatic disorders, the disease should be designated as Bouillaud-Gräff's disease. Aschoff defends the specificity of the nodules that characterize Bouillaud-Gräff's disease. To Siegmund's assertion that scarlet fever likewise leads to the appearance of these nodules on the

heart, he replies that there is a possibility of a double infection. He also rejects Löwenstein's theory of the tuberculous origin, pointing out that the presence of tubercle bacilli in the blood does not necessarily prove the tuberculous etiology, for, since nearly every one contracts a tuberculous infection, it is possible that Bouillaud-Gräff's disease causes an irritation of the tuberculosis-infected lymph nodes at the pulmonary hilus which then throw their bacilli into the blood stream. In this connection he also directs attention to the frequent dissemination of a tuberculous process from a pulmonary focus in the course of whooping cough, stressing that in this event nobody maintains that the tubercle bacilli are the cause of the whooping cough. He insists that the nodules, in which no pathogenic organs have been detected hitherto, are characteristic for Bouillaud-Gräff's disease. At first they were detected only in the myocardium and the pericardium and its vessels but later they were detected also in the muscular tendons near the joints, in the dura mater in the first part of the aorta and in the vessels of the kidney and liver —that is, in the abdominal cavity. The author believes that Bouillaud-Gräff's disease, which is so frequently accompanied by articular pains, causes the formation of characteristic nodules not only in the heart and in the pericardium but also in the connective tissue in other parts of the organism. Nevertheless, he thinks that during childhood the visceral form of Bouillaud-Gräff's disease is restricted essentially to the heart and the pericardium including the coronary vessels, to the beginning parts of the aorta and the pulmonary artery, to the peritonsillar and cervical organs and to the dura mater and the tendons. To be sure, it is also generally admitted that besides the visceral form of Bouillaud-Gräff's disease there is also an articular form and that the periarticular nodules are noteworthy, especially during childhood.

Nature of Erythema Nodosum.—Kessler formulates his thesis as follows: erythema nodosum is an immunobiologic defense reaction of an organism that has been made allergic by an antigen; the antigen is formed by the tubercle bacillus or by a micro-organism that is biologically similar to it; the phenomenon develops when the causal agent is in the blood. In analyzing this thesis the author points out that Uffelmann suggested a relationship between erythema nodosum and tuberculosis even before Koch had discovered the tubercle bacillus. Later, the close relationship between tuberculosis and erythema nodosum was demonstrated by means of the tuberculin reaction. However, some investigators raised objections, pointing out that there are cases of erythema nodosum that react negatively to tuberculin. Following a discussion of the symptomatology of erythema nodosum, the author reviews the literature on the problem of its relationship to tuberculosis, giving special attention to Ernberg's studies, which subsequently were corroborated by other investigators. Then he describes his own observations on erythema nodosum. In the course of an epidemic of measles, he observed it in eight children who for several months had consumed milk from tuberculous cows. In connection with these cases he inquires whether the appearance of the erythema nodosum concurred with the first increase in the allergy following the tuberculous infection or whether the nodular eruption represents merely a fluctuation in the allergy of a tuberculous patient, the fluctuation having been caused by the measles. He cites factors that indicate the first possibility; for instance, a tuberculous meningitis was produced in a nursling by the same infected milk, the consumption of which in the other children was followed by the appearance of the erythema nodosum. In the summary the author stresses that erythema nodosum is an allergic phenomenon which develops in patients with tuberculosis, when simultaneously with great fluctuations in allergy, especially during the first increase, there exists a bacillemia. This allergic phenomenon is a biologic process which is not restricted to tuberculosis but which is nevertheless chiefly observed in patients with tuberculosis. In the Scandinavian countries tuberculosis is the causal factor of erythema nodosum in 95 per cent of the cases; in England and America in approximately 70 per cent. Erythema nodosum has been observed after scarlet fever in patients in whom tuberculosis was definitely absent. In scarlatina the erythema develops likewise at the time of a decided change in allergy, that is, from three to four weeks after the scarlet fever exanthem. Streptococci seem to be the causal organisms in such cases. In this connection the author points out that some investigators who do not accept the tuberculous etiology of erythema nodosum regard streptococcic infections at least as a second etiologic possibility and interpret erythema nodosum as a nonspecific allergic syndrome. In the concluding paragraph the author points out that American authors called his attention to the frequent occurrence of erythema nodosum in cases of coccidioidal granuloma, a disorder which resembles tuberculosis in many respects, but in which the tuberculin reaction is negative.

Chirurg, Berlin

11: 257-320 (April 15) 1939. Partial Index

Recurrence After Herniotomy. O. Nordmann.—p. 257.
Accident: Thoughts on Social Insurance. M. Kirschner.—p. 262.
Treatment of Traumatic Aneurysm. H. von Haberer.—p. 270.
*Operative Indications in Acute Pancreatic Necrosis. V. Schmieden.—p. 274.
Gallstone Ileus, Its Roentgen Diagnosis. G. Petrén.—p. 278.

Pancreatic Necrosis.—The severe types of acute pancreatic necrosis are rare, according to Schmieden, while mild forms, frequently masked by gallstone disease, are rather common. The etiology of the disease is quite complicated, involving a number of pathologic as well as physiologic-functional factors. A stone in the papilla and the infected cholelithiasis do not explain all of the process. Surgical intervention is indicated in cases in which the diagnosis is not certain, as well as in the severest forms of pancreatic necrosis. The circulatory collapse in such cases is probably due to the entrance into the circulation of the liberated trypsin and consequent dilatation of the vessels, while the products of digestion contribute to shock and the death of the patient. The intervention should be limited to drainage of the pancreatic area and in some cases of the biliary tract as well. The pancreas must not be incised or torn with the finger, as was the practice in the past. One should not operate in the presence of a severe circulatory collapse, uremic manifestations or beginning diabetic coma. The conservative medical treatment of severe cases is permissible only when no doubt as to the diagnosis exists.

Deutsche Zeitschrift für Chirurgie, Berlin

251: 641-774 (March 27) 1939

*Operative Treatment of Lymph Node Metastases of the Neck. O. Schürch and A. Fehr.—p. 641.
Sacral Fistulas in Congenital Skin Displacements and in Suppurating Dermoids. W. Schaefer.—p. 672.
Indications in Fractures of Neck of Femur. R. Nicole.—p. 683.
Value of Roentgen Irradiation in Treatment of Cancer of the Breast. Uebermuth.—p. 757.
Simplified Meniscus Operation and Shorter After-Treatment. Heim.—p. 763.

Lymph Node Metastases of the Neck.—Schürch and Fehr discuss the operative treatment of chronic lymph node metastases developing in the course of a malignant process in the mouth or the pharynx. Their conclusions are based on an analysis of 113 cases in which the operation for the removal of the lymph nodes was performed at Clairmont's clinic, Zurich, between the years 1927 and 1936. Palpably enlarged lymph nodes in 25.7 per cent of the cases suggesting malignant degeneration proved, on microscopic examination, not to be malignant, while in 67.3 per cent of the cases the clinical diganosis of malignancy was confirmed by the microscopic examination. The operative mortality was 11.4 per cent. The five year survival of patients with carcinoma of the lips amounted to 61.5 per cent. The percentage of five year survival was 50 in cases of lymph node metastases microscopically demonstrated and 80 in cases in which there was no lymph node invasion. The five year survival in cases of carcinoma of the oral cavity amounted to only 14.9 per cent, with three year survival in 17.5 per cent. Cases of lymph node involvement yielded 8.8 per cent of five year survival, while in those in which there was no lymph node invasion it was 33⅓ per cent. Of the forty-two patients with carcinoma of the tongue, 14.3 per cent survived five years, those with neck metastases yielding 5 per cent and those without, 42.9 per cent of survivals. The authors conclude that in order to be effective the operation must include the removal in a block of the submental, submaxillary and the deep nodes with resection of the external and internal jugular veins and the sternocleidomastoid muscle. This operation gives better results than irradiation alone. The operation is applicable only in cases

in which the malignant cells have not invaded the capsule of the lymph node or the surrounding connective tissue. Operative intervention in the latter type is likely to be followed by a rapid and diffuse invasion of the loose connective tissue by the malignant cells. In cases in which the possibility of the removal of the nodes *en bloc* appears doubtful, preparatory irradiation should be applied. In a few cases irradiation makes operation possible. Here, however, the prognosis is unfavorable. The authors consider it necessary to remove the nodes on both sides when the tumor reaches the midline or reaches beyond it.

Acta Medica Scandinavica, Stockholm

99: 99-286 (March 16) 1939. Partial Index

Elimination of Cholic Acids: III. In Man. B. Josephson and H. Larsson.—p. 140.
Hippuric Acid Synthesis as Functional Test of Liver. G. A. Lindeboom.—p. 147.
Cardiac and Respiratory Neurosis. H. Heckscher.—p. 162.
Osteomalacia Hepatica. E. Ask-Upmark.—p. 204.
*Gastric Secretion and Basal Metabolism in Chronic Rheumatic Arthritides. G. Edström.—p. 228.
Nontropic Sprue with Normoblasts and Megaloblasts in the Peripheral Blood: Case. S. Frostad.—p. 257.
*Pellagra in Uniovular Twins. F. Mainzer.—p. 262.

Gastric Secretion and Basal Metabolism in Chronic Arthritides.—Edström says that, since Woodwark and Mackenzie demonstrated in 1912 that chronic articular rheumatism is often associated with achylia, considerable attention has been given to the secretory conditions of the stomach in this disorder. Edström himself describes studies on the gastric function of several hundred patients with rheumatic disorders who have been admitted to the university hospital in Lund, Sweden, since the beginning of 1936. The gastric function was examined by means of fractionated test breakfasts. In cases in which no free hydrochloric acid was obtained during the first hour after the introduction of the tube, 0.5 mg. of histamine was administered by subcutaneous injection. Of 432 patients with typical chronic rheumatic infectious arthritis, eighty (18.5 per cent) had an achylia that proved refractory to histamine provocation and in an additional forty-nine (11.4 per cent) subacidity was detected. Thus the gastric secretion was reduced in about 30 per cent of the cases. The achylia proved to be more frequent among the severe cases than among the milder cases, but the duration seemed to have no influence on the presence of achylia. The frequency of the achylia seemed to increase with advancing age but in all age groups the incidence of achylia was higher in the patients with arthritis than in the control material (without arthritis). On the other hand, there was no evidence of a relationship between secondary anemia and achylia. In 148 cases of rheumatic fever with chronic arthritis the examination of the gastric function by means of the test breakfast disclosed no divergence from the normal. In fifty of the aforementioned 432 cases of chronic rheumatoid arthritis the fractionated test breakfast was repeated at long intervals. Many of the patients had improved in the meantime. Of twenty-three cases of achylia refractory to histamine on the first occasion there remained only twelve on the later occasion. Of eight subacid cases at the first examination, five showed normal secretion at the second. Only two of the cases that showed subacid or normal acid conditions at the first examination showed achylia refractory to histamine at the second; both presented a clinical deterioration. In 369 of the aforementioned 432 patients with chronic rheumatic infectious arthritis, the basal metabolic rate was studied. Placing the limits for the normal at plus or minus 10 per cent, it was found that 24 per cent showed subnormal, 70 per cent normal, and 6 per cent supernormal values; that is to say, the basal metabolic rate was on the average below the normal. Those patients who had concurrent achylia showed a lower mean basal metabolic rate than the others; moreover, the severe cases showed a predilection for subnormal values of the basal metabolism. The basal metabolism was examined also in 120 of the 148 cases of rheumatic fever with chronic arthritis. The values were found to be normal in 67.5 per cent, subnormal in 17.5 per cent and supernormal in 15 per cent of the cases; that is, the average was normal. Subsequent basal metabolic tests disclosed that, of seventeen who had had subnormal values at the first test, thirteen had now normal rates. Many of those who showed an increase in the metabolic rate also showed clinical improvement. On the other hand, of five in whom previous normal rates had decreased to subnormal ones, three showed clinical deterioration. The author concludes that the lowered basal metabolic rate and the reduced secretory activity of the stomach are secondary to the rheumatic lesion; they are merely clinical symptoms of the general impairment of the mesenchyma that is present in chronic rheumatic infective arthritis.

Pellagra in Uniovular Twins.—Mainzer reports the clinical histories of two young women who were uniovular twins. Both of them had the same type of pellagra, although they had lived in different continents for three years previous to the development of the disease. Moreover, none of the persons who ate with them at the same table showed symptoms. The disorder as well as four relapses and remissions developed simultaneously in the two sisters. The nutrition had been adequate; the diet included moderate amounts of corn. The author thinks that these two cases demonstrate the presence of an endogenic factor in pellagra with the conclusiveness of an experiment. That the disorder actually was pellagra cannot be doubted. It became manifest in the twin sisters with completely identical cutaneous manifestations with psychic symptoms and with hyperchromic anemia. Digestive disturbances were present in only one of them. A glossitis was demonstrable in neither of the sisters, but the papillae of the mucosa were atrophic. That the two sisters are uniovular twins is proved not only by their great similarity in appearance but also by the similarity in pathologic and physiologic functions. The basal metabolic rate was slightly reduced in both of the sisters and both were subject to menstrual disturbances. Both had severe degrees of myopia. A number of functional disturbances showed a considerable degree of similarity in the two sisters: The electrocardiograms were identical. The fasting blood sugar values (low but normal) were practically the same and after the administration of insulin the values were again practically identical. The nitrogen rest, uric acid, chloride and cholesterol contents of the serum were identical within the margin of error. The diuresis of water and chlorides and the total molecular excretion on the hydrogen ion diuresis in tolerance tests showed great similarities. Other functions, however, were dissimilar. The author concludes that the reported observations demonstrate the importance of endogenic factors in the pathogenesis of pellagra.

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101: 259-286 (March 2) 1939

Clinical Investigations on Diabetes Diet Containing More Abundant Carbohydrates With and Without Insulin: C'cn. M. Lauritzen.—p. 259.
Heart Insufficiency and Edemas as Result of Beriberi. P. Schultzer.—p. 268.
Content of Inactive Hemoglobin in Blood with Special Regard to Standardization of Hemoglobin. Esther Ammundsen and M. Trier.—p. 271.
English Catgut. E. Holm.—p. 274.
*Blue Scleras. H. L. Jensen and K. K. Ortmann.—p. 275.

Blue Scleras.—Jensen and Ortmann, reporting two cases of Lobstein-Eddow's disease, osteopsathyrosis idiopathica, say that in the disorder blue scleras, a tendency to fractures and otosclerosis constitute a triad. As seen in their second case, blue scleras are not always accompanied by the tendency to fractures. There is generally a proportionality between the degree of coloring and this tendency. All authors agree that blue scleras are the dominating symptom. The color has been observed in five generations and established in fifty descendants of one person. A certain intensity of the coloring, familial character, and combination in at least one member of the family with osseous and auditive stigmas are necessary for positive diagnosis. The abnormal fragility of the bones depends on insufficient periosteal ossification coincidentally with inability of the bone tissue to take up calcium. The patients may become greatly deformed; in extreme cases there are "glass men." The deeper cause of the symptom complex is unknown. While in one family the disorder has appeared only in twenty male members, as a rule both men and women are affected. Transmission is probably dominant. The disorder may skip several generations, to reappear as the result of exogenic factors (disease) or endogenic factors (puberty, gravidity).